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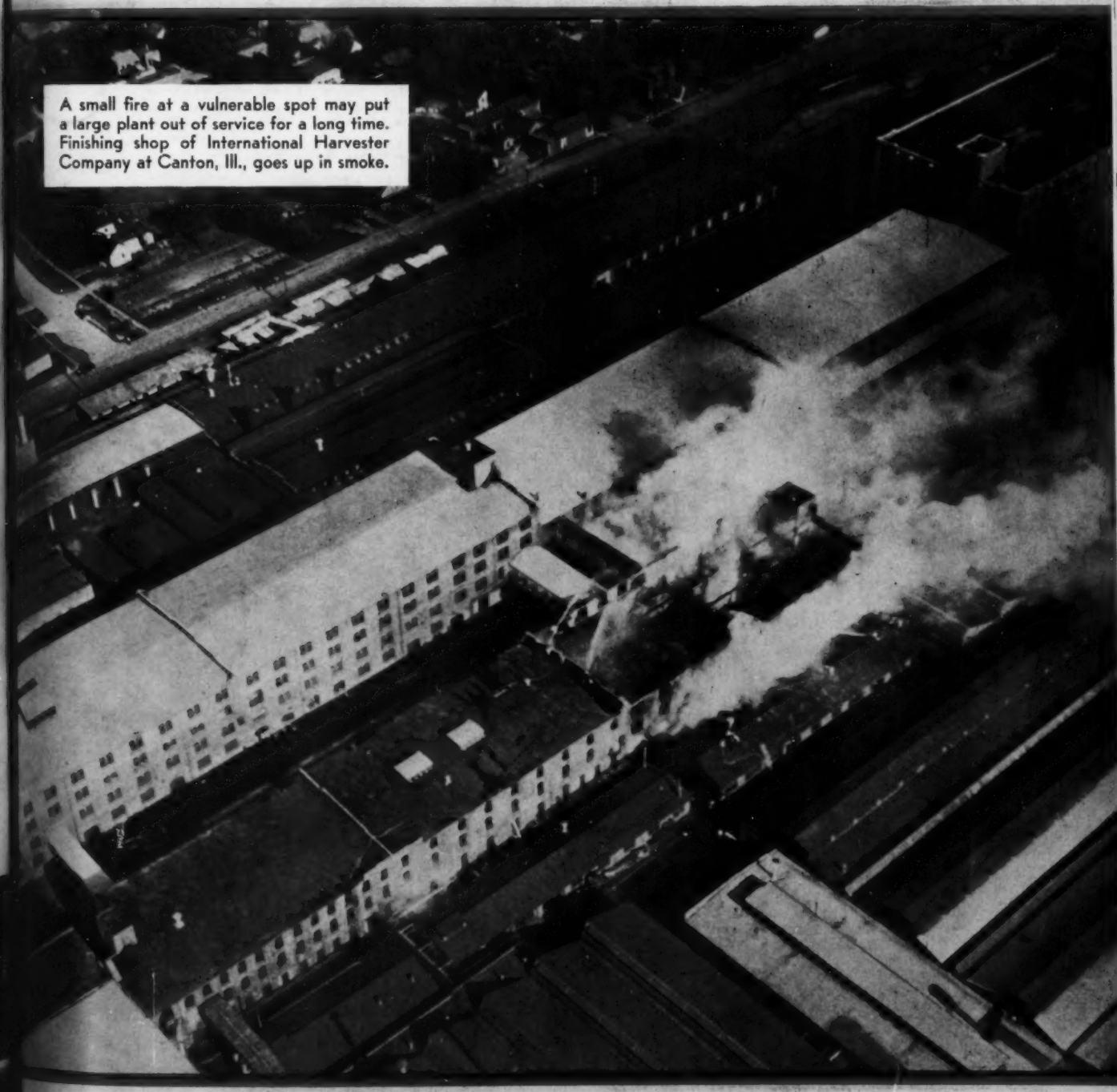
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 90, No. 9 SEPTEMBER, 1937 Member A.B.C.—A.B.P.



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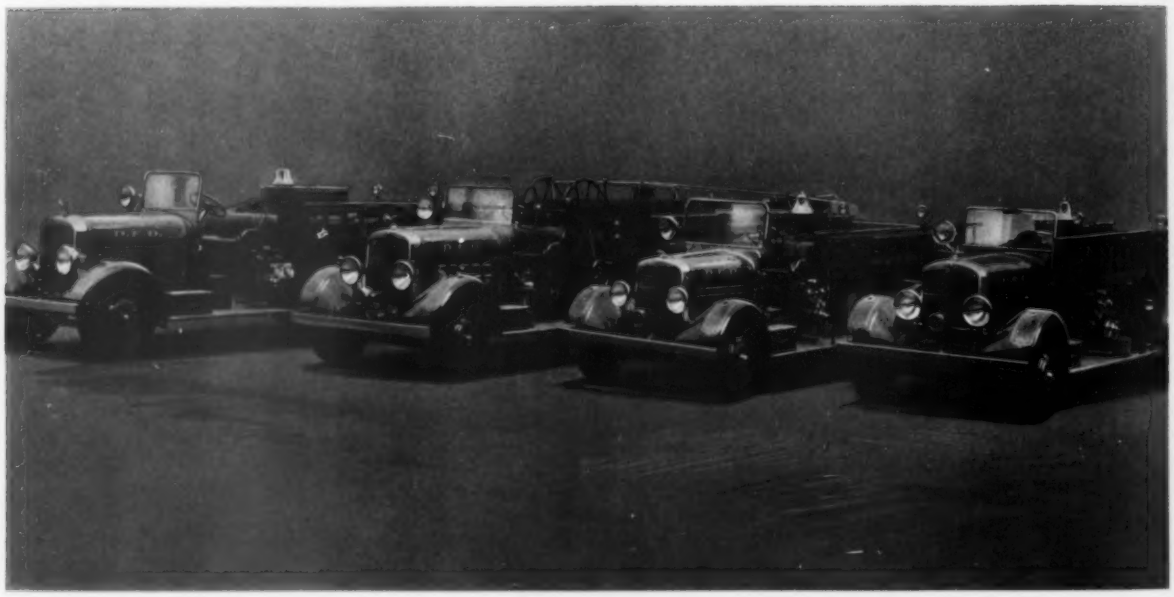

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The Journal of the Fire Protection Profession Since 1877

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Three BIG Events!

√ *60th Anniversary of FIRE ENGINEERING*

(*Founded in* 1877 *as the National Firemen's Journal*)

√ *Annual Convention of the International Association of Fire Chiefs*

(*To be held at Oklahoma City, Oct.* 19-21)

√ √ *The combined Anniversary-Convention Number of FIRE ENGINEERING*

(*To be issued next month—October* 10.)

We are going to celebrate our Anniversary and salute the IAFC Convention with what will unquestionably be by far our finest issue of all time. A gold-mine of interesting and helpful information and illustrations, it will be brimful of the kind of material that fire chiefs will want to keep for permanent reference.

Remember, its the next issue—October. Don't miss it, whatever you do.

The Publishers

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MEMBER
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Published the tenth of each month by
CASE-SHEPPERD-MANN PUBLISHING CORPORATION
Also publishers of "Water Works Engineering" and "Municipal Sanitation"
General Offices—24 West 40th Street, New York

SUBSCRIPTION PRICE
U. S. and Canada, $2 a year; Foreign $3; Single Copies, 25c

KARL M. MANN, President — I. HERBERT CASE, Vice-Pres. and General Manager — JESSE H. NEAL, Vice-President

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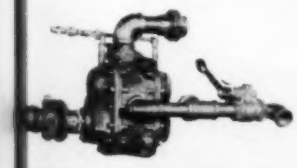

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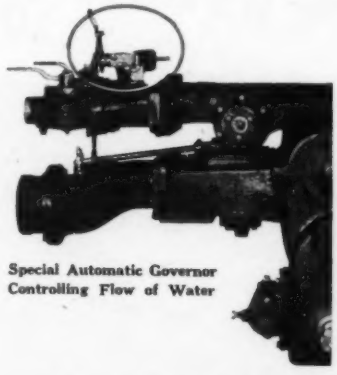

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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 90 SEPTEMBER, 1937 No. 9

WITH THE EDITOR

An Oft Forgotten Loss The illustration on the front cover of this issue well illustrates a loss resulting from fire that is not included when the damage figures are totaled up. In this particular plant only the finishing shop was burned, yet the entire plant had to be shut down. Two thousand six hundred men were laid off. Loss of pay by employees and loss of profits for the company, as well as loss of customers, should rightly be included in the fire loss as finally computed.

* * *

Will You Be on Hand? The only organization in the country today which is really interested in the welfare of the Fire Chief is the International Association of Fire Chiefs.

Though all its past activities have been designed to accomplish better protection for life and property, its work in analyzing new hazards and devising means to meet them represents a tremendous aid to progressive Fire Chiefs.

Much that has been accomplished by the Chiefs is the result of deliberation at their annual conferences. Here heads of Fire Departments throughout the country gather annually to present their problems to their brother officers. The discussion of these problems is illuminating and truly helpful.

This year the International Association of Fire Chiefs meets at Oklahoma City, on October 19 to 22, inclusive. There will be gathered Chiefs from cities large and small. They will be there to offer the benefits of their experience to others. If you have not already planned to be on hand, better do so at once!

* * *

Large Tanks Booster When booster tanks first replaced chemical tanks on motor fire apparatus they were made in like size, that is, a sixty-gallon water tank replaced a sixty-gallon chemical tank.

But with later designs of trucks the booster tank has appeared in ambitious proportions. Two hundred gallon tanks are now common, but the limit in size has not been reached. One truck was recently delivered with a 500-gallon water tank.

While the additional water capacity is desirable, particularly where the truck is to do suburban duty, a serious design weakness is being created. The tank is placed just behind the driver's seat, which means that it is located practically midway between front and rear axles, or at the center of the chassis frame.

The load represented by a two-hundred-gallon tank when filled is approximately a ton; of a five-hundred-gallon tank, over two tons.

The strain on the chassis frame caused by placing such a load at its weakest point is serious. Frames will either have to be strengthened ultimately or else some means of distributing the load devised. Isn't this a subject worthy of attention right now?

Fred Sheppard

The Why of Combustion

Materials Burn Because Combustion is Sustained by Oxygen and Temperature is Raised Progressively as Fire is Increased

By A. C. HUTSON,
Assistant Chief Engineer, National Board of Fire Underwriters,
New York City

THE definition of a combustible is "anything which will ignite and burn." For a fireman there is need, however, of a more definite idea, not as to what is a combustible, but as to why it is, as to what takes place when substances ignite and burn, and as to means of preventing combustion or of stopping it when it has started.

The reason why a material ignites and burns has sometimes been spoken of as the chemistry of fire. We do not have to know much of chemistry to really understand combustion. We see it every day, in many forms and have a sufficient knowledge of the general cause and behavior to be able to understand what takes place without any technical detail of the occurrence known as ignition and burning.

Volatile Inflammables, Such as Found in a Paint Factory, Provide an Excellent Example of Increasing Intensity of Fire as Materials Heat Up
Note the blast of flame from the burning paint factory illustrated above.

Most Materials Largely Composed of Carbon

Briefly, most materials found in ordinary use, such as wood, paper, cloth, vegetable matter and oils, are largely composed of carbon. Charcoal, or coke is almost pure carbon, and it is known to every one that all of these materials can be reduced down to some form of carbon.

Just what takes place in the burning of a material is a chemical combination of the oxygen in the air with the carbon in the material. There may be other elements in the material which also combine with the oxygen. For instance, ordinary commercial or natural gas will contain hydrogen, and in many materials there will be sulphur, and numerous of the lesser known elements, all of which will combine with oxygen. Even the metals of ordinary use combine to a greater or lesser degree. When very finely divided, such as bronze and aluminum powder, this combination with oxygen can be extremely rapid, with explosive effects.

Oxygen Necessary to Sustain Combustion

There are several influencing factors in regard to combustion or burning. The first is the presence of oxygen. This normally composes 21 per cent of air, and under these conditions burning can take place very readily, if other conditions, to be mentioned, exist. When the per cent of air is reduced, combustion is also lessened. This reduction of oxygen can take place in several ways. Other gases may be liberated and become mixed with the air which will result in a dilution of the oxygen down to less than 15 per cent, at which point most materials will stop burning. Or there may be an actual exclusion of air. Everyone has seen the effect on a bonfire when wet leaves are thrown on it or when sand is poured on burning material. This acts as a cover or a blanket and prevents air from reaching the material.

Some substances contain oxygen to such a degree that they will decompose, which is a form of burning, even though no air is present. This is true of smokeless powder, which burns in the barrel of a gun or cannon. Celluloid and other materials of like nature perform in the same way. They will, under conditions of heat, recombine and liberate large quantities of heated gases, which, when mixed with air, will burn with an intense heat.

Some materials will not burn, but will give off large quantities of oxygen which will combine with other material and cause it to burn. The incendiary bombs used during the war were of this nature. Materials used in connection with fertilizer manufacturing have liberated enough oxygen under conditions of heat that even iron would burn.

Heat Essential to Burning

The second factor effecting combustion is heat. Practically all articles and materials in common use must be heated before this combination with the oxygen of the air will take place and application of heat has to be continued to keep it burning. That is if the heat is not carried from the burning part of the material to the unburned part, the fire will go out. This is best illustrated with a

match, which will continue to burn if held with the flaming end down so that the flame heats up the unburned part, but may go out if held with the burning end upward.

Heat Increases the Intensity of a Fire. But Where Temperature of the Burning Material is Kept in Check, the Intensity of the Blaze is Also Checked

In the fire illustrated in this picture, the water beneath the thin film of burning oil absorbs heat, and thus holds down the fire.

Ignition Temperature Not the Same for All Materials

The temperature is not the same for all materials at which this oxidizing action, with the evolution of flame, starts. Wood normally requires about 750 degrees of heat before it begins to burn, but if exposed to a temperature of less than 400 degrees for a period of half an hour it will ignite. This lowered temperature of ignition where wood has been exposed to heat for a considerable period of time has a very marked influence on fire fighting. It explains why intensity of fire increases so rapidly after the first ten to thirty minutes and accounts for buildings bursting into flames throughout the interior, where there has been a delay in discovery of the fire. Under these conditions, where a fire in a closed building has been smoldering for a considerable time, it is probable that all the woodwork and other burnable material has reached the ignition point. Then all that is needed is sufficient oxygen, which it will receive when a window is broken, a hole burned through the roof or a door opened.

The ignition of other materials vary. Carbon disulphide has an ignition temperature of 212 degrees, gasoline about 500, kerosene about 490 and illuminating gas, 1,100 degrees. It must be remembered, in connection with this, that it is not necessary for a flame or spark to be applied for ignition will take place. It is this the material to ignite at these temperatures. All that has to happen is for sufficient air to be present, and form of ignition which produces backdraft, when firemen open up a building and thus add oxygen to gases which are heated to above their ignition point.

Form of Material Important Factor

The third factor in considering combustion is the form of material. It is common knowledge that the finer or thinner a material is, the easier it is to ignite it. Shavings, chips and excelsior quickly ignite and burn rapidly. Bulky material, such as those when baled, or the larger timbers in a building, char on the outside, but actual combustion of the entire mass is slow. This is a vital matter in the study of fire fighting. It explains why heavy timber, or so-called mill, buildings are safer to fight fires in than the ordinary joisted or frame building.

Some of the commonest combustibles are the oils, greases and fats. These are first turned into gas or vapor, then with proper mixture of air there can be combustion. Some of the oils, as gasoline, will vaporize at ordinary temperatures, and therefore where they are present, and the vapors can mix with the air there is always great danger of fire. So long, however, as the material can be kept in liquid or solid form, or can be in a container, such as a tank, drum or can, or in pipe lines, there is no danger of ignition or fire.

The fourth factor in regard to com-

Baled and Bulky Materials Burn Slowly

After the first flash of flame over the surface of baled cotton, further progress of the fire is comparatively slow.

bustion is that it is progressive. As for instance, when wood burns the first action is not complete combustion. The carbon and oxygen combine to form carbon monoxide, which is in itself a combustible gas, which, when given enough air, will burn. This carbon monoxide corresponds closely to illuminating gas, and will not ignite until a temperature of about 1,100 degrees is obtained.

In many fires this action of forming carbon monoxide and then burning to carbon dioxide, or the gases of complete combustion, takes place right at the burning material, and gives visible flame seemingly coming direct from the log, or beams or other form in which the combustible material may be.

Hazards from Carbon Monoxide

If, however, there is not enough heat, or an insufficiency of air, this carbon monoxide will be given off in large quantities and being of about the same weight as air, it will diffuse or spread. Being heated it will tend to rise to the upper parts of the building. Burning oil and grease are prolific producers of carbon monoxide, in part because the original ignition temperature is low, being about 500 degrees and therefore much below the 1,100 degrees necessary to burn it to carbon dioxide, and in part because air cannot get to the central part of the flat surface of the material.

This partial burning of the gases liberated through the heating of combustible material plays a very important part in the scheme of fire fighting. Not only are the gases burnable, and therefore of an explosive nature, but they are dangerous to life and because of small particles of unburned carbon, or soot, they impede the firemen in locating and extinguishing the fire.

Two Ways of Preventing or Stopping Combustion

Combustion can be prevented or stopped in either one or both of two ways. By keeping the temperature of the material below the ignition temperature or by excluding or diluting the air so that sufficient oxygen is not available for ignition.

The application of water in an intelligent manner has proved to be the best method of preventing destruction of combustible materials.

Some of those found, however, may be in such form, shape or extent as to make some special fire extinguishing medium particularly well suited.

(From a paper read before the North Carolina Fire School at Durham, N. C.)

HIGH PRESSURE PUMPING STATION COMPLETED FOR CONEY ISLAND AREA

Description of Station Which Pumps Both Fresh and Salt Water Depending on Demand, and Which Has Special Electric Power Lines

By William Jerome Daly

CONEY ISLAND, known the world over as New York City's oldest seasde resort, has a new high pressure pumping station for fire fighting. It has been functioning for a month but has not as yet been formally accepted. This is to be done with public ceremony late in September or early in October by Mayor La Guardia after the New York Board of Fire Underwriters makes a report of its survey and test. In the interim, the station is operating on receipt of alarms of fire and is supplying 125 pounds pressure just as soon as the box strikes in.

The scene of several disastrous fires, due to its inflammable construction, Coney Island has been in serious need of better water supply for fire fighting for many years. The more recent of the outstanding fires, was the multiple alarm of July 18, 1932, which swept a block of boardwalk structures and was stopped by the firemen with the aid of the brick wall of a well known national chain of restaurants.

Since 1905 Coney Island has had an apology for a high pressure station. It couldn't do better than 4,000 g.p.m. The hydrants and the mains were adequate but the pressure wasn't, with the result that soon after John McElligott became Chief in the Spring of 1932, the fireboat "Harvey" at the Battery responded on all third alarms for fires on Coney Island and hooked up to three high pressure hydrants on the shore of Gravesend Bay, from which point it boosted the high pressure service. Pumping engines ashore did a somewhat similar stunt. They hooked up to low pressure mains from which they pumped into high pressure hydrants.

The powerful "Harvey" drawing heavily on the sea water in Gravesend Bay created the fear that salt water might enter the fresh water mains and back up into the domestic water supply. To obviate that, check valves are used by all engine companies responding to Coney Island on first, second and third alarms, to prevent the salt water which might be polluted, from backing up into the household water services.

The new station is isolated for at least a half a city block from any other structure in Neptune Avenue near West 23rd Street, one block from Gravesend Bay. It is about 90 x 50 feet, one story, limestone, with a deep bottom, and cost a half million dollars supplied by Uncle Sam through the agency of the PWA.

The architect is Irving Chanin. All exterior windows are of fire resisting glass. The building has a water curtain all around it. It was erected and equipped under five contracts for structure, electrical equipment, mechanical equipment, heating and plumbing.

It has five de Laval pumps capable of 2,700 g.p.m. each at 225 pounds. The pumps are electrically driven with approximately 4,400 volts supplied by the Consolidated Edison Co. Each motor on each pump is a 500 h.p.

The fresh water supply is sufficient for one pump only. If two or more pumps are used, the salt water supply from Gravesend Bay automatically trips itself into service.

The fresh water intakes are two 24-inch mains. The salt water intakes are two 36-inch mains from the Bay into concrete screened wells which feed the pumps via two 24-inch mains.

If and when the salt water supply becomes two pounds heavier than the fresh water supply, a chlorination system automatically keeps the salt water from contaminating the fresh water.

The discharge from the pumps into the high pressure gridiron is by means of two 20-inch mains into Neptune avenue. The high pressure district of Coney Island extends from Brighton Beach westerly to but not including the privately owned community known as Sea Gate. A test of the station held in August showed a delivery of 20,000 gallons through thirty-seven hose lines at 125 pounds pressure.

It is anticipated that eventually when the new station is worn in, the third alarm responses by the Battery fireboat will be discontinued and the pumping engines ashore can also discontinue hooking up to low pressure to boost the high pressure service.

For the present, however, the fireboat will continue its responses to third alarms and hook up to the high pressure hydrants, as heretofore, with 3½" hose, but they will not start water. Instead the officer and deck crew will go ashore and report to the Chief in charge of the fire. The pumping engines ashore, when ordered to do so, shall feed the high pressure system from the low pressure hydrants at 160 pounds.

Engineers who have witnessed the tests conducted thus far, calculate that the station is capable of a maximum of forty-five streams at 125 pounds, with a maximum delivery of 20,000 gallons. Recent tests were observed for the New York Board of Fire Underwriters by William A. White, Supervisor of the Board's Bureau of Fire Prevention and Water Supply, and by his assistant William Haynes, and by officers of the Fire Department.

The Coney Island station is fed by two cables which are exclusively for this station. Nothing else is tapped in on those lines. The feeders arrive in separate terminal rooms. They carry 4,000 volts to "squirrel cage" motors on each pump. These motors are three-phase 500 h.p. each with full voltage starting, thrown right across the line.

The new pumping station is under the administration of Joseph Goodman, former Chief Engineer and now the Commissioner of the City Department of Water, Gas and Electricity. The station is equipped with fire alarm telegraph bell and register.

The acquisition of this high pressure fire station fills a long-felt want in one of the utmost flimsy wood and plaster board resorts along the Atlantic coast.

Handling Fire in the Cotton Warehouse

If Sprinklered, Utilize the Fire Department Connection to Sprinklers in Fighting Blaze, Rather Than Rely Upon Streams Entirely

By CHIEF D. W. BROSNAN
Fire Department, Albany, Ga.

IN reviewing the reports on numerous cotton fires in which the loss varied from a few hundred dollars up to hundreds of thousands of dollars, I find that the size of the loss is usually dependent upon the method used in fighting the fire, which includes the use of pumpers and of hose streams and the question of ventilation and of salvage. The major part of this discussion will deal with sprinklered cotton warehouses, because they form the major part of cotton storage, where high values in cotton are concentrated; however, many of my remarks will apply to warehouses that are not protected with sprinklers. In compresses and warehouses in the larger cities, there have been very few fires of large proportions in sprinklered sections, although they have had their share of fires.

Heavy Loss Fires in Small Towns

The quick control of fires in these types of storage is mainly attributed to buildings being of heavy or slow burning construction and sprinkler systems being adequately supplied with water. In various cases there have been other features that have helped control the fires, such as quick work by the Fire Department to boost the water pressure feeding the sprinklers, by use of a pumper connected to the Fire Department connections, adequate men and equipment and salvage. On the other hand, most of the fires incurring large losses in sprinklered warehouses have occurred in the smaller towns, where the buildings were of light construction and the water supply inadequate.

In these smaller towns, with limited equipment and trained men, the records indicate that they practically always attempt to extinguish the fire by the use of hose streams and do not use the Fire Department connection to the sprinkler system. As a result they find it impossible to enter the warehouse on account of heat and smoke. Hose streams are obstructed by tiered cotton, when used through open doors, so the common practice is to cut holes in the roof or break out the skylights; this causes drafts that increase the intensity of the fire and in most of the cases reviewed, the results have been disastrous.

Chief D. W. Brosnan

In studying control of fires in sprinklered warehouses we have five outstanding features: 1. Water supply; 2. Ventilation; 3. Construction; 4. Storage methods; 5. Salvage.

Study the Water Supply

Fire officials should familiarize themselves with the volume of water and the pressure required for proper operation of sprinklers in the cotton warehouses of their towns. The pressure remaining when water is flowing through a pipe is known as residual pressure, and this is most vital in the operation of a sprinkler system. In ordinary properties of nonhazardous occupancy it is anticipated only a small number of the sprinkler heads in a given area will open at one time, and the water supply should furnish a flow for each head at the rate of at least 20 g.p.m., with a residual pressure of about 15 pounds at the top line of sprinklers.

Water Supply Must Be Adequate for Sprinklers

Ordinarily not more, and usually less, than 25 heads will open in a section containing 100 heads and this would require 500 g.p.m. at 15 pounds residual pressure on the top line. However, experience shows that fires in cotton warehouses often flash in their early stages, and if sufficient water under proper pressure is not available at the time of this flash it i possible that too many heads will open and make the water supply inadequate; also, if the Fire Department upon arrival connects its pumper to a nearby hydrant and throws hose streams onto the fire, it likely would reduce the amount of water available for the sprinklers to nothing. Where sprinklers are operating in a joisted warehouse at at least 15 pounds pressure a fair coverage of ceiling joists is secured, but any reduction below this point has a serious effect on the ceiling protection and may allow the fire to spread in the joist channels and burn through the roof. I would suggest that chief officers visit their warehouses, determine the number of heads in each compartment and decide if the water supply is adequate in the case of, say, 25 per cent of the heads opening. Also, if there would be sufficient water should 90 per cent of the heads go into operation.

The department should be drilled and taught the advantage of the use of the Fire Department connections and instructed to have the first or second engine due at the fire to connect and boost the pressure on the sprinkler system to 125 pounds if practical. Even though only one engine is available, I think it will usually be best to connect this to the sprinkler system. After a fire has spread out between the bales and tiers, it is practically impossible to get to the seat of the fire with hose streams and

the best method is to cover the area with a blanket of water from the sprinklers.

Where to Ventilate

Ventilation at cotton fires should be made only directly above the cotton that is burning; for instance, if the cotton was on fire in the north portion of the warehouse and ventilation was effected in the south portion, the effect would be to draw the flame over the unburned cotton, setting all of it on fire. Never knock out skylights or cut holes in the roof promiscuously. Ventilation can be used to advantage in cotton fires but if you do not know what you are doing, it is best not to ventilate at all.

Suggestions as to Construction

There is very little that we can do about the old type cotton warehouse to correct structural conditions; it would be desirable if all cotton storage compartments were less than 10,000 square feet in area. However, we can see that all openings in division walls are protected with good fire doors, opening kept to a minimum and all unnecessary openings bricked up. Where fire doors are in operation they should be inspected to see that they operate automatically and in every case kept closed at night. All roofs should be tightly constructed and skylights should be of wired glass in metal frames and provided with sprinkler protection. Also it would be desirable if ceilings and joists were coated with whitewash or similar material, which would aid in protecting them from the first flash of a fire.

Correct Methods of Storage

It is best to keep the cotton tiered as low as possible; for instance, instead of tiering cotton four bales high on side, it would be best to tier it two bales high on end, which will serve the same purpose, be less expensive and easier to move if need be. Cotton stored two bales high on end offers a better chance for the water from the sprinklers to reach the seat of the fire. A trucking aisle at least six feet wide should be maintained at all times. Much can be accomplished in the correction of some of the evils of storage from a conference with the warehouseman and the Fire Chief.

Fire Among Cotton Bales Gives Firemen Hard Task
In this fire on a New York pier, cotton bales that had become ignited had to be pulled apart in order to extinguish the smouldering blaze that defied ordinary means of fire fighting.

Importance of Salvage Operations

Salvage operations are most important in cotton fires, for there is opportunity for a great reduction of the loss. Immediately upon arrival of the department at the scene of the fire, open a door in the compartment that is involved, start spraying the cotton around the door opening; after the cotton is cooled or at least after the blaze is subdued, start removing the cotton by trucking to the street, placing the bales on end and allowing at least three feet space around each bale so that you can work around it, using small garden hose streams; after the fire in bale is extinguished on all four sides and the up end, then invert the bale to see that no fire is burning on the other end.

The hoops should never be removed from the bale, neither should the bale be bored with heavy streams of water. Should the cotton blaze after being removed to the street and you are not able to cover all of it at once with your actual extinguishment with the small lines, then the cotton can be sprayed with the regular hose streams to deaden the fire until you can get to it. There is no reason why you should not salvage at least sixty per cent of the value of all the cotton in a warehouse, even though the roof be burned off, if you will use proper methods.

Connect to Sprinklers Where Possible

Last but not least, when you respond to a fire at a warehouse that has automatic sprinkler protection, connect your pumper to the Fire Department connection of the sprinkler system and thereby increase the supply of water to the system, instead of robbing the system by taking all the available water for hose streams that may never reach the fire at all. In the event the sprinkler system is disrupted, through falling pipes, and you are assured the water is going to waste, then cut off the valves on the sprinklers and use your hose streams, but until you know the sprinklers are ineffective, keep the water going to them to full capacity and use only surplus water if you have it for hose streams.

It is well to remember that the water you put into the system through the Fire Department connection bypasses the main control valve. You have seen fires where the main valve in the sprinkler system was closed, either through carelessness or crookedness, but if you connect to the sprinkler system you are assured that water is being fed to the heart of the fire, and in my humble judgment it is best to keep the engine pumping into the system just as long as you know the system is not disrupted, even though there is not sufficient water in the area of the fire to supply pumper streams. If the sprinklers cannot reach the fire neither can you with hose streams. I might add that an experience of successfully handling cotton fires over a period of more than thirty years assures me that the adoption of this method of operation will reduce losses in cotton fires.

Shortening the Time Between Fire and Sending of Alarm

Should the Municipality Provide Automatic Means Beyond the Fire Alarm Box to Notify the Fire Department of Fires?

By H. A. FRIEDE
Superintendent of Fire Alarms, Washington, D. C.

THIS is a highly debatable, but very important subject; however, it covers a situation which concerns every Chief and Fire Alarm Superintendent in these United States, regardless of the size of the municipality.

The smaller the city or town, the more this subject applies; as the smaller cities, as a general rule, are not fire alarm conscious. In the old days before the fire alarm system was developed, it was the custom to summon the Fire Departments to a fire in some haphazard manner, and most fires were large fires. This is still the case in many small communities where there not adequate fire alarm facilities. The records show that 70 per cent of our annual fire loss occurs in cities of 20,000 population or less; and a survey of such cities or towns will disclose that they are without any adequate means of calling their respective Fire Departments.

Therefore, there is a great need for special study of the fire alarm systems in each of your Fire Departments, as little attention has been given this all important branch of your service. A check of the National Board of Fire Underwriters' reports will show that in almost all cases fire alarm systems are listed as deficient. Would you stand idle and permit a fire truck to leave your station house with only a driver, or in such condition that it would not perform satisfactorily and do a good job at a fire? No! Yet you make very little effort to secure adequate fire alarm facilities in your cities—the fire alarm bureau is considered only the silent partner.

Great Fire Losses from Delayed Alarms

Delayed alarms have contributed more than any other factor to our great fire losses, which during the past 20 years have exceeded *eight billion dollars* in property values and more than 10,000 lives annually—and, since January of 1937, more than 800 *human lives* have been lost in fires.

The fact is obvious, when it is remembered that practically all fires are the same size at the start. Most all fires start with a blaze no larger than a match flame. Within the first few minutes a single bucket of water would extinguish all fires with an insignificant property loss, and the life hazard would be practically eliminated. Unfortunately, these large property and life losses, which occur daily in some parts of our country, are accepted as unavoidable; yet, is that a fact? I *don't think it is—they can be avoided,* and at a cost equal to only a small percentage of the value of property annually destroyed by fire; and the resulting loss of life that cannot be measured in dollars and cents. The answer is the automatic fire alarm protection and the proper maintenance and extension of our municipal fire alarm systems, to provide a centralized service for handling these alarms.

Use of Automatic Fire Detection Devices

The highly debatable subject is: should our fire alarm facilities stop at the curb? The modern trend of fire alarm practices is definitely toward automatic fire detection devices, which has its relation to our municipal fire alarm system to the end that a better degree of fire alarm protection will be afforded.

In addition, the automatic sprinklers constitute an automatic fire alarm device when equipped to give audible alarm where fires of magnitude cause them to operate. There are several combined automatic fire detection devices and sprinkler systems, the usual arrangement being such that an alarm is sounded by an automatic fire detector considerably in advance of the operation of the sprinkler head.

A review of the history of the automatic devices is not so good and will disclose that in the early days of electrical development, a considerable number of automatic alarm systems were installed which failed to function in time of need, or which transmitted so many false alarms that such systems became discredited by the insurance companies, as well as by fire department officials. Installations were sometimes made by property owners in order to secure lower rates, and as soon as this was accomplished, the system or systems were allowed to deteriorate and become defective or inoperative.

Such systems were worse than no systems, because they were relied upon to afford protection when, as a matter of fact, no reliable protection existed. However, this is no longer the case with the advances that have been made within the last decade in the matter of automatic fire alarm detectors and current supplying units for operating such detectors; it is believed that today systems are available which are dependable and require but little maintenance.

Proper Maintenance Important Factor

The question of maintenance has always been an extremely large factor in the success or failure of interior automatic fire alarm systems. Obviously, any type of systems which is not maintained in working order is of no value for the purpose intended. A great many fire alarm superintendents and fire chiefs have felt that unless such systems were properly installed and maintained by some responsible person, they could not be recognized as having any practical value; and, accordingly, have not allowed any such privately owned systems to be connected directly to their municipal fire alarm systems.

Municipal Protection of Private Property

There are other municipalities which have permitted or encouraged the connection of privately owned manual and automatic interior fire alarm systems. The question of connecting or not connecting is one of

the controversial issues which only time and study will settle. Eventually, enough experience will be accumulated to enable the controversy to be settled on the basis of *facts* rather than opinions. I believe that the present trend of thought is towards an increasing use of municipal facilities for the protection of private property. There are several reasons for this trend, probably the most significant reason being the recognition that the destruction of private property by fire is a matter that affects the general public as a whole. If an industrial plant, a school, hospital or any other similar buildings or groups of buildings are destroyed, it affects the well being of the entire community. This fact is so well recognized that there seems to be no question in anybody's mind as to the desirability of providing municipally owned facilities for extinguishing fires.

If we could picture an ideal condition from a fire-fighting viewpoint, in regard to automatic fire detecting systems, what would it be? On the basis of present day fire detection and alarm equipment, the nearest approach to the ideal probably would be the installation of fire alarm devices, automatic, manual, or both, in every room or place in every building, with circuits so arranged that at least the location of the building would be promptly transmitted to the Fire Department or fire-fighting forces, should a heat condition of predetermined intensity occur. At the present time, relatively few buildings are provided with any means of automatically detecting a fire.

Efficacy of the Fire Alarm Box

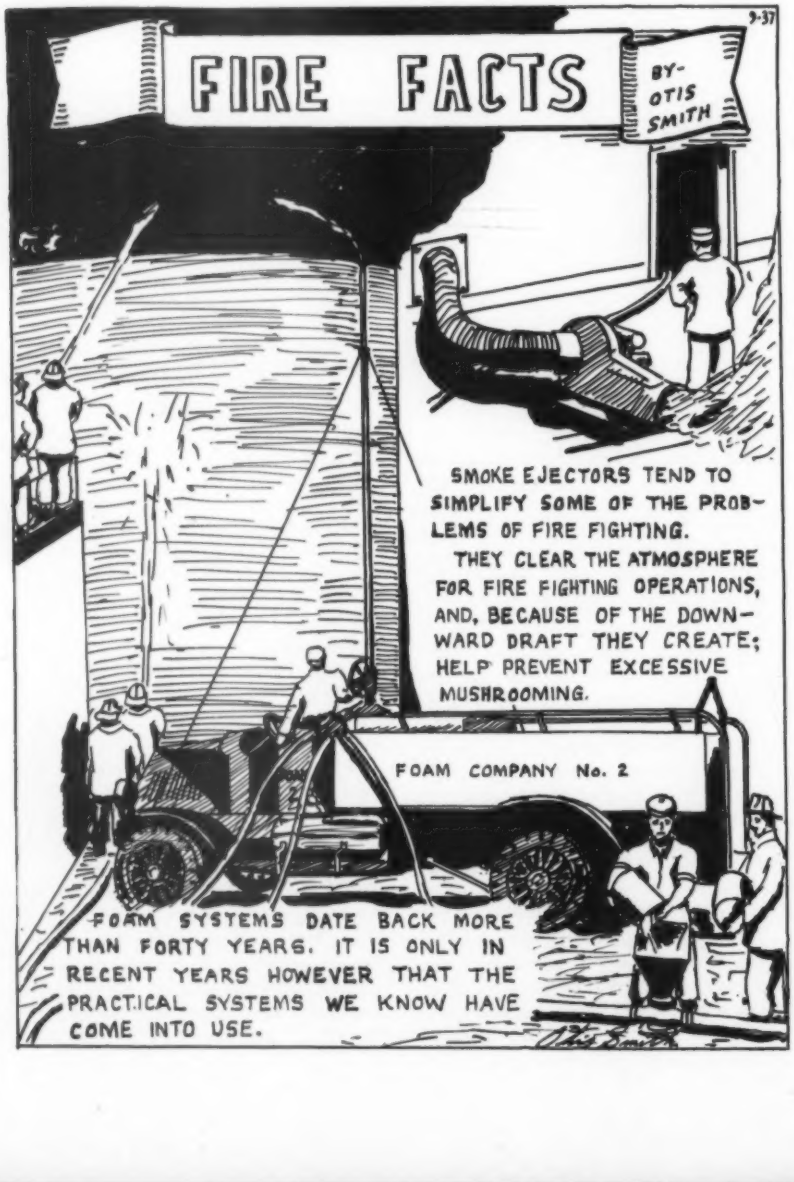
In practically all cases when a fire is first discovered, the party who has made the discovery proceeds with all possible haste to send an alarm to the Fire Department. Sometimes he or she may not use good judgment, but in general it can be said that when a fire is discovered, a prompt and valiant effort is made to summon help immediately. They either seek a fire alarm box or they call the Fire Department by use of the telephone; and in the case of the municipal fire alarm box, one should not have far to travel to be able to initiate an alarm. It is a rare occurrence that a fire alarm box is pulled and fails to transmit an alarm; because it and the circuit connecting it with fire alarm headquarters are under constant electrical supervision. Such is not the case with the telephone, and it is becoming less reliable each year with the extension of the dial telephone.

Troubles with 'Phone Alarms Just Beginning

Our troubles in this connection are just beginning, and will continue. In New York State, the telephone company, by installing dial service in rural community exchanges, has crippled the small Fire Departments; and such will be the case in many other small communities who still depend upon the Telephone Company and its operators to sound the alarm to the various Fire Departments, instead of trying to provide a small fire alarm system specifically designed for emergency service. There are now available small, inexpensive and reliable fire alarm systems for such communities.

Automatic Means for Detecting Fire Solution

Even though this condition exists, a great many fires attain serious proportions before you are aware of their existence. A manually operated means of transmitting a fire alarm is helpful in all cases when a fire is discovered in a building, but in many cases fires occur in unoccupied buildings or in parts of buildings that are unoccupied. It is under these conditions that fires attain considerable headway before they are discovered and the Fire Departments notified. An automatic means for detecting a fire and sounding an alarm seems to be the only possible solution. In view of this, we might well ask: why has so little progress been made in protecting life and property by automatic fire detecting and alarm devices? Is it because few systems have yet been devised that accomplish satisfactory results? An examination of the Patent Office records will disclose that


FIRE FACTS
BY- OTIS SMITH
SMOKE EJECTORS TEND TO SIMPLIFY SOME OF THE PROBLEMS OF FIRE FIGHTING.
THEY CLEAR THE ATMOSPHERE FOR FIRE FIGHTING OPERATIONS, AND, BECAUSE OF THE DOWNWARD DRAFT THEY CREATE; HELP PREVENT EXCESSIVE MUSHROOMING.
FOAM COMPANY No. 2
FOAM SYSTEMS DATE BACK MORE THAN FORTY YEARS. IT IS ONLY IN RECENT YEARS HOWEVER THAT THE PRACTICAL SYSTEMS WE KNOW HAVE COME INTO USE.

hundreds of patents have been issued covering automatic fire detecting devices. The Underwriters' Laboratories list of inspected fire protection appliances contains the names of about ten manufacturers, each of whom make one or more types of thermostats that have been tested and accepted by the Laboratories; their requirements are very rigid.

Municipality's Duty as to Fire Protection

It seems to me rather difficult, therefore, to lay down a hard and fast rule as to just what is the dividing line between what the municipality will do and what it will not do in the matter of fire prevention. If we concede that it is the duty of the municipality to enter private property and extinguish the fire, it would seem that it would not be unreasonable for the municipality to afford any reasonable facilities that will permit the fire to be discovered and located, so as to be fought in its earliest stages.

Our privately owned Central Station companies that have been in existence for years, have made the foregoing service available to the public on a rental basis, and have rendered yeoman service in reporting fires; but still the vast majority of risks, even our public buildings which frequently do not carry fire insurance, are without such protection. Therefore, the municipalities will find it necessary to encourage the installation of automatic detector and extinguishing means; and also, at the same time, provide adequate municipal fire alarm facilities for reporting a fire promptly.

If it is all right to use the city-owned water, water mains, fire-fighting equipment and to provide a Fire Department to extinguish fires, the question again is that perhaps it is all right to use the cities' electrical circuits and equipment to give notification as to the existence of the fires. In this connection, it should be remembered that very great technical progress has been made in the matter of fire detection systems in the last decade; and that merely because such systems were unsatisfactory twenty years ago, or even ten years ago, is no reason for concluding that they would be unsatisfactory today.

Summary

I wish to summarize my opinion in the matter as follows: the municipally operated municipal fire alarm boxes, or street boxes, should be accessible within a few minutes to all or a great percentage of the people who may discover a fire. Automatic fire-alarm devices should be located at strategic points which will sound an audible signal to warn occupants of a building that a fire has occurred; and to send such alarms direct to fire alarm headquarters. This alone offers the greatest possibility for reducing the number of delayed alarms.

In closing I wish to say that the National Municipal Signal Association, composed of Superintendents of Fire Alarms and City Electricians, are devoting considerable time to improving the fire alarm code and other electrical problems which directly concern Fire Departments. These men need and deserve cooperation and assistance. So, if you have any electrical problems on which you desire the unbiased and sound opinions of these men, submit them to the Association. They will be brought to the attention of the proper committees and you will receive a report on the matter.

Paper presented before Eastern Association of Fire Chiefs, Washington, D. C., June 3, 1937.

Program for I.A.F.C.

A well rounded program has been arranged for those who will attend the sixty-fifth annual conference of the International Association of Fire Chiefs, to be held at Oklahoma City, Okla., October 19 to 22. It is as follows:

October 19, 1937

Registration 8 a.m. to 9:45 a.m.
Meeting called 10:00 a.m.
- Conference called to order
- Invocation
- Address of Welcome
- Response to Address of Welcome
- President's Message
- Memorial Service
- Memorial Oration

Announcements and adjournment for luncheon

Afternoon

Meeting called 2:00 p.m.
- Roll Call
- Adoption of minutes of preceding meeting
- Appointment of Committees
- Report of Secretary
- Report of Treasurer
- Report of Board of Auditors
- Reading of Communications
- Report of Sectional Organizations
- Report of Standing Committee

Topic No. 1: "Fighting Fires in Chemical Industries," by Chief W. W. Stephen, Monsanto Chemical Works, Anniston, Ala.
Topic No. 2: "European Signalling Systems and Methods of Controlling Street Traffic," by L. Spangenberg, Engineer, Babson Statistical Organization, Babson Park, Mass.
Topic No. 3: "The New London, Texas, Schoolhouse Explosion," by Dr. David J. Price, Principal Engineer in Charge of the Chemical Engineering Research Div., Bureau of Chemistry and Soils, Dept. of Agriculture, Washington, D. C.
Topic No. 4: "Administration and Cooperation of Fire and Police Departments," by Judge Clifford Davis, Commissioner of Safety, Memphis, Tenn.
"Dutch Lunch" at Main Auditorium 6:30 p.m. to 7:30 p.m.
Entertainment from 8 p.m. to 11 p.m.
- Stage drill by Kiltie girls
- Stage performance by Boy Scout whip team
- Stage performance and dance by Native Oklahoma Indians

Wednesday, October 20

Business Session 9:00 a.m.

Topic No. 5: "What Future for Fire Alarm Systems" by Mr. A. C. Hutson, Asst. Chief Engineer, National Board of Fire Underwriters, N. Y. City.
Topic No. 6: "Fighting Oil Well Fires," by Chief George B. Goff, Oklahoma City.
Topic No. 7: "Fire Protection and Fighting Oil Refinery Fires," by Chief R. Granger, Tulsa, Okla.

Business Session 2:00 p.m.—Round Table Conference

Topic No. 1: "Should emergency (rescue) trucks be under control of the Police Department or the Fire Department?"
Topic No. 2: "Are we yet ready for the three platoon system?"
3:00 p.m.—Educational tour of the oil field by motor transportation.
5:30 p.m.—Barbecue at State Fair Grounds.
6:30 p.m.—Wild gas well on fire in front of grandstand. Oil fire in front of grandstand.
7:00 p.m.—Return to Convention Headquarters.

Round Table Conference 8:00 p.m.

Topic No. 3: "Should children be permitted in motion picture theatres unaccompanied by parent or adult guardian?"
Topic No. 4: "How far should a Fire Department go in preparing specifications for fire apparatus?"
Topic No. 5: "What should be done to check the growing number of fires caused by incinerators in apartment houses?"
Topic No. 6: "What progress is being made toward preventing hazardous air conditioning installations?"
Topic No. 7: "What has been your experience with metal aerial ladders, particularly during the past winter?"
Topic No. 8: "What has been your experience with power operated aerial ladders during the past year?"
Topic No. 9: "When and how should Fire Department ladders be tested? When should they be condemned?"

Thursday, October 21

Meeting called to order 9:00 a.m.

Business Session

Topic No. 8: "State Fire Department Training Schools" by Chief Ray Pence, Stillwater, Oklahoma.
Topic No. 9: "Preparing for War Emergencies," by Chief & Fire Commissioner John J. McElligott, N. Y. City and I. H. Case, V. Pres. & Gen. Mgr., Fire Engineering, N. Y. City.

Round Table Conference

Topic No. 10: "Is it feasible and desirable to erect large structures on fire station sites in high value districts, the fire company to occupy the ground floor and other municipal offices the other floors?"
Topic No. 11: "What warning signals do you consider necessary and desirable on fire apparatus?"
Topic No. 12: "What is needed today in the way of new designs of apparatus and equipment in the fire service?"
Topic No. 13: "What experience have you had with fog nozzles? What results were secured?"
Topic No. 14: "To what extent should the Fire Chief be concerned with fire prevention factors in building construction?"

Business Session 2:00 p.m.

Topic No. 10: "Can a Volunteer Department do Effective Inspection Work?" by Chief M. F. Gunderson, Oelwein, Iowa.
Topic No. 11: "First Aid Work," by Dr. Harry M. Archer, Honorary Surgeon, Fire Department, N. Y. City.
Topic No. 12: "What's New Among the Exhibitors?" (Exhibitors given opportunity to tell of new products and interesting points of their exhibit).
Civic Banquet and Ball: 6:30 p.m.

Friday, October 22

Meeting called to order 9:00 a.m.
- Unfinished business.
- Report of Secretary as to Attendance.
- New Business.
- Selection of Next Year's Convention City.
- Election and Installation of Officers.

Final Adjournment.

Rights of Aliens to Be Employed by Municipal Fire Departments

A Careful Review of the Law as to Naturalization As Laid Down Recently by Higher Courts

By LEO T. PARKER
Attorney-at-Law

IT is well known that many applicants have experienced unforeseen difficulties in obtaining naturalization or citizenship papers prior to becoming members of the municipal Fire Departments. Frequently, the great disappointment of applicants, caused by delay, results from inexperience of laws relating to naturalization. In other instances, applicants actually are not aware of the correct legal procedure and therefore the unexpected delays might not have been experienced had mistakes been avoided. Therefore, the purpose of this article is to thoroughly and completely review the law, as laid down by recent higher courts.

First, it is important to know that the laws relating to aliens, and their right to become citizens of the United States, rests entirely in Congress. In other words, Congress may make valid laws forbidding all aliens, or certain classes of aliens, from entering the United States, and it may cause the expulsion of all aliens, certain classes of aliens, or a certain alien. (285 F. 523.)

On the other hand, Congress cannot pass valid laws forbidding citizens from coming into the United States, or expelling citizens from this country unless they have committed a criminal offense, or they are fugitives from the justice of some foreign country.

Under the latter circumstances laws passed by Congress are valid which compel citizens to leave this country or refuse to permit them to enter. All higher courts hold that the United States has plenary power, inherent in sovereignty and inalienable, to exclude or deport aliens, absolutely or upon any condition it cares to impose. (Nicoli vs. Briggs, 83 F. (2d) 375.) Moreover a decision of the Secretary of Labor denying an alien admission to the country is final and conclusive, unless proceedings were manifestly unfair, executive officers acted unlawfully or improperly, abused their discretion, or prevented fair investigation, or their authority was not fairly exercised consistently with principles of justice embraced within the conception of the United States Constitution.

SUBJECTS TREATED IN THIS ARTICLE

Definition of an Alien
Civil Rights Explained
When an Alien Can Become a Citizen
The Five Year Residence Requirement
The Law of Naturalization
The Law of Deportation

Civil Rights

The term "Civil Rights" includes all rights which are the outgrowth, or the result of civilization and which naturally, and legally, may be expected to include the natural rights of the subjects of a government controlled by its subjects. (219 Pac. 700.) These respective rights are held by the higher courts to be personal security in the lawful enjoyment of life, limb, body, health, reputation, personal liberty, and property. Such rights are not derived from governmental agencies, as municipalities, states, federal, or the state, or the United States Constitutions, but they exist inherently and are merely reaffirmed by provisions in the States' and United States Constitutions. Any restrictions thereto are the result of law making bodies composed of citizens themselves who for good and reasonable reasons may decide to curtail the natural civil rights of the citizens including themselves. (245 S. W. 944.)

Restrictive laws of this nature apply solely to persons who owe allegiance to foreign countries and obviously do not apply to citizens of the United States.

On the other hand, it is interesting to know that the higher courts have consistently held that when the word "citizen" is used in any ordinary law, it includes citizens of the United States, and also citizens of all other countries who at present are in this country whether or not they are naturalized. (207 Pac. 490.)

All persons are presumed to be citizens of the United States until the contrary is definitely proved. (178 N. W. 738.) In other words, in the absence of proof that a person is not a citizen of this country, the law presumes that he is a citizen.

Also, it is important to know that various courts have held that a person may be a citizen of the United States, and yet not be a citizen of a particular state. (23 F. 341.)

The term "citizen of a state" means legally that a person is a citizen of the United States and that he resides in a particular state. (207 Pac. 490.)

Contract Rights of Aliens

An alien legally is a person who owes allegiance to a foreign country. (6 F. (2d) 670.) A foreigner who holds only a declaration of intention is a foreign subject. (248 F. 992.)

A citizen of the United States has no legal right to enter into a contract of any kind with an alien who is not eligible to becoming a citizen of the United States, unless the law of the state in which the contract is made specifically provides that the contract is valid.

Moreover, state laws and municipal ordinances are valid by the terms of which aliens are prohibited from emjoying the privileges of citizens, as where aliens are prohibited from owning real property; receiving compensation under State Compensation laws which authorize payments to injured workmen; applying and being appointed firemen either regular or volunteer; being a member of lodges,

associations, municipal departments, and the like.

Citizenship of an Alien

Circumstances may exist under which the acquired rights to citizenship may be withdrawn from an alien who has received naturalization papers.

However, the fact that an applicant for naturalization changes his occupation from the one stipulated in his application does not deprive him of his acquired rights of citizenship (227 F. 247). This is true although United States Statutes limit the number of persons in a stated occupation who may have the privilege of citizenship, and afterward the naturalized citizen changes his occupation to the occupation listed as limited (238 F. 68.)

For example, a United States Statute provides that no laborers shall be naturalized who are under contract to perform certain kinds of work, as where a construction company, railway company, or the like agrees to give aliens work who come into this country. It also specifies that persons who belong to a learned profession shall not be affected by the law, but may be naturalized. The legal question arose as to who belongs to a "learned" profession. The higher courts have held that learned professions include teachers, 260 F. 104; bookkeeper, 262 F. 91; clerk, 253 F. 97; telegraph operator, 296 F. 506; marine or mechanical engineer, 276 F. 954; salesman, 238 F. 632. Other members of "learned" professions, lawyers, doctors, dentists, and all persons who have studied or specialized in a particular kind of work.

Five Year Residence Requirement

The United States Statute requiring aliens to reside within the United States for a period of five years before filing a petition for citizenship is intended to permit proper and careful observation of the applicant's reputation, experience, dependability, efficiency, and ability. (242 F. 741.)

Of course, naturalization papers may be refused any alien who is likely to become a public charge, who is a nuisance, criminal, or otherwise undesirable, or who makes false statements on his or her petition. (268 F. 172.)

Law of Naturalization

In order that readers may have at hand concise records of important decisions rendered by recent higher courts, on the subject of naturalization, we shall review several authentic cases, as follows:

An alien who pleaded guilty of a felony embezzlement was sentenced to imprisonment in a state penitentiary, was subsequently paroled, and later pardoned by the governor. He was held not entitled to hearing on petition for citizenship until five years after termination of parole by pardon. (14 F. Supp. 394.)

An immigrant who had entered the United States in 1892, and in 1895 was convicted of voluntary manslaughter and sentenced to a penitentiary from which he was discharged in 1901, and who remained in the United States in 1907, held properly denied citizenship on ground of unlawful entry. (83 F. (2d) 276.)

The statute requiring aliens before being granted citizenship to reside "continuously" within the United States for five years, immediately preceding date of petition for citizenship, held required to be liberally construed. In other words, an alien may leave this country for brief periods, if he intends to return, without affecting the five year requirement. On the other hand, in a late case (15 F. Supp. 761), the higher court held that an alien's three absences from the United States, within five years from date of petition for citizenship, totaling more than seventeen months, during which time he visited his native land was sufficient to justify the refusal to give him citizenship papers.

Order of naturalization should not be cancelled unless the fraud is convincingly proved. Therefore, an order admitting an lien to citizenship establishes his status beyond a doubt as being a citizen of the United States. This status cannot be destroyed except by clear proof that the qualifications which he claims actually do not exist, or that he used fraud when applying for naturalization as where he forged papers, or failed to admit disqualifications as being a criminal or otherwise undesirable. (16 Fed. Supp. 963.)

The Law of Deportation

There are many reasons why aliens may be deported from the United States. Let us review actual higher court cases on this subject decided during the past few months.

Various courts have held that to successfully attack a deportation order it must be shown that a fair hearing was denied, or that the order was made without substantial support in evidence, or that the law does not authorize deportation in due consideration of the evidence. (83 F. (2d) 375). However, if the facts are proved conclusively, the deportation order is valid. Aliens recently were deported in view of the following facts:

Evidence that an alien was an active member of a Communist party of the United States held to justify deportation on ground that he had become a member of or affiliated with an organization advocating the overthrow of the United States Government by force. (14 F. Supp. 484.)

Danger that deported alien would

French Firemen Have Short Wave Receiving Sets

For some time the Fire Department of Paris, France, has claimed that it is insufficiently manned. To obtain better protection with the present force, short wave receiving sets are placed in the homes of each fireman. This system of short wave radio communication for Fire Department use is also used in the town of Asnieres with a great deal of success. This system, it is believed, is particularly applicable for small towns which rely on a volunteer Fire Department. Above is the short wave radio broadcasting set used at the fire house.

be maltreated on return to native land held not to prevent deportation of alien, especially in view of the fact that alien may be deported to any country of his choice, except contiguous territory. (14 F. Supp. 485.)

Where an illiterate widow, aged 70, who had lived 21 years in the United States, obtained re-entry permit before leaving for foreign visit, and on return had only $100 on hand, with about $1,000 in postal savings bank in Italy, and no one was obligated to support her, it was held justified in finding that alien was likely to become public charge, and Secretary of Labor was warranted in refusing to admit her. (Minuto v. Reimer, 83 F. (2d) 166.)

A person was born in the United States. After becoming twenty-one years old he enlisted in the Polish army and took an oath of allegiance to Poland. He thereby became expatriated, and hence was subject to deportation because of entry into United States upon passport obtained through false representations. (14 F. Supp. 770.)

A mere suspicion by the Board of Special Inquiry that a girl applying for admission was coming for immoral purposes was not enough upon which to base an order of exclusion as it must be proved by facts relating to the girl's past life before admission may be refused or she may be deported. (84 F. (2d) 763.)

Must Prove Good Moral Character

On the other hand, another higher court held that an applicant for citizenship must allege and prove that he possesses a good moral character which meets standards of average citizen of community in which he resides. Ordinarily, alien criminals should be deported rather than admitted to citizenship. Alien convicted of felony cannot be admitted to citizenship unless he has been unconditionally pardoned. (289 N. Y. S. 869.)

Failure of an alien to pay ship fare held not a crime involving "moral turpitude" which would warrant deportation, where offense was not coupled with any larcency in obtaining passage and passage ticket was not stolen by the alien. (16 F. Supp. 428.)

Obviously, until the *final* papers authorizing citizenship are received by an alien he remains an alien, and he cannot be favored with the privilege of a citizen of the United States. Moreover, as before indicated, the right to citizenship may be withdrawn for any good and valid reason.

Old Fire Patrol Abolished

One hundred years ago, there was founded in New York City, the first salvage corps in the United States. Fire Patrol No. 1, of 8 Franklin Street, was disbanded on August 23, and the men have been assigned to other companies.

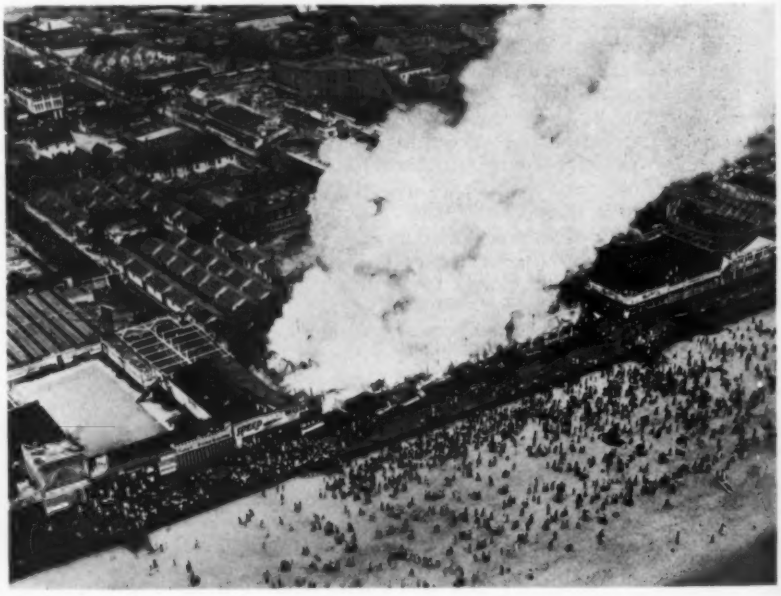
Formerly this company answered from fifteen to twenty calls each day, but recently the number of calls had been cut down to about four.

2 Blocks Razed at Beach

Starting in an ice-cream stand in the center of the amusement section of Rockaway Beach, Long Island, fire swept through two blocks of concessions and did damage estimated at $150,000. Fire was discovered at 9:55 a.m., and resulted in the premature opening of the Marine Parkway Bridge over the Rockaway inlet.

Mayor LaGuardia and other city officials were at hand to attend the opening of the bridge. The bridge was opened before the dedication to permit three fire trucks from Brooklyn to pass over.

Bungalows for two to three blocks on either side of the fire were ordered evacuated until the fire was brought under control.



Fire Which Razed Two Blocks Near the Shore at Rockaway, L. I.

Chief I. M. Hubbard Dead

Isaac M. Hubbard, Chief of the Greenwich, Conn., Fire Department and a volunteer fireman for thirty-nine years, died on August 15 from a heart attack suffered while at home at the age of sixty, Chief Hubbard, a member of the Connecticut State Firemen's Association, and host to the 1936 convention of that organization, was named Chief of the Greenwich department in 1933 when the town and borough combined.

The late Chief Hubbard was active in fraternal orders, being a 32nd degree Mason. He also was a member of the Redmen and Elks. He is survived by his widow, Mary Wallace Hubbard and two sons, Henry T. and Lloyd. Funeral services were held on Tuesday, August 17, at the Masonic Temple, Greenwich. Honorary pall bearers were the Captains and Lieutenants of the two central fire companies in Greenwich over which Chief Hubbard was in charge.

Fire department officials from various cities in the state attended the funeral.

THOMAS F. MAGNER.

Spectator Drowns at Fire

A four-alarm blaze swept the Commercial Bag Manufacturing Co. plant in Baltimore, Md., August 16. The fire was discovered during the lunch hour and a box alarm promptly sounded. Four engines, two trucks, one hose, one water tower, and a fireboat responded to the first alarm. The blaze had assumed such headway that a second was sent at once. A few minutes later the roof fell in, showering nearby lumber yards with embers. A third and fourth alarm were then sounded.

The plant is located at Jones Falls. Three fireboats tied up opposite the building, taking lines ashore, and also using their guns on the blaze. When the fire spread to the two lumber yards office workers removed their records to the nearby city morgue for safety. Three firemen were slightly injured and one spectator drowned in Jones Falls.

OTIS SMITH.

Westfield Observes Anniversary

Westfield, Mass., is observing the one hundreth anniversary of the formal organization of its Fire Department.

In 1837, the Board of Selectmen directed that a suitable person be employed to take charge of each fire engine and to keep it in good condition. This marked the start of the local paid department.

LARRY DONOVAN.

PROMOTIONAL STUDY COURSE

Herein is presented a series of definitions, questions and answers designed to aid fire department officers in preparing themselves for promotional examinations. In this department, which appears monthly, will be included questions typical of examinations held throughout the country.

Definitions

Atmo signal: Automatic local fire alarm system utilizing system of expansion under heat of air contained in small tube installed along ceilings and walls and leading at each end to opposed diaphragms with vents and compensating chambers in a detector unit.

Attritions machines: Usually consist of two metal discs revolving vertically, turning in opposite directions and separated by a slight space (¼-inch) with slightly indented surfaces to give a grinding surface, and enclosed in a metal case, giving the appearance of a blower.

Battens: Pieces of boards or scantling a few inches wide, used to hold together several pieces running lengthwise.

Bay-construction: Term used to denote the absence of the ordinary small size beams in floor construction and is the space representing the span between rows of parallel beams or girders.

Black powder: Explosive consisting of 75 per cent saltpetre, 10 per cent sulphur, 15 per cent charcoal.

Questions

(To be answered in next issue)

1. What instructions would you give a recruit in the following:
   (a) Use of pipes and nozzles.
   (b) Entering a building charged with smoke.
   (c) Care of roof lines.
   (d) Making siamese connection.
2. If you were in charge of a company operating a line on one of the upper floors of a building, and you found your line too short to reach the position desired, what would you do? How would you do it?

False and True Questions

(Is each question false or true? Answers in next issue)

3. T F—The first hook and ladder company to arrive at a building on fire should always immediately begin to ventilate it.
4. T F—Concrete floors are always watertight.
5. T F—Automatic relief valves are absolutely necessary on pumpers of the centrifugal type.
6. T F—Engine pressure is always equal to nozzle pressure plus friction loss in the hose and at connections.
7. T F—The stream of water from a soda and acid chemical tank is much more effective in putting out a fire on a wooden roof than a stream of hydrant water of the same size and velocity.
8. T F—The friction loss in a line of 3-inch hose with 2½-inch couplings is almost as great as the loss in a line of 2½-inch hose of the same length with 2½-inch couplings because in the former case couplings smaller than the hose break up the smoothly flowing stream of water.
9. T F—A 700-gallon pumper should be able to deliver at least its full rated capacity at 120 pounds net pump pressure through two 100-foot, 2½-inch hose lines siamesed into a one and three-quarters-inch nozzle.
10. T F—A fire engine standing on a street pavement 40 feet above the surface of the Hudson River can draw water from the river if the engine has been kept in proper condition and if it is not more than 200 feet from the river.
11. T F—Battered threads on the siamese of a standpipe make it useless as soon as the water that was in the tank has been used.
12. T F—If 2½-inch couplings are used with both 3-inch hose and with 2½-inch hose, the advantages of using uniform couplings offsets the disadvantage of the greater friction loss that results from the use of 2½-inch instead of 3-inch couplings in the 3-inch hose.
13. T F—The net water pressure of a fire engine at work is affected by the length of hose and by the size of the hose and nozzle.
14. T F—Skylights with wire netting are required over the stages of theatres.
15. T F—It is not necessary to draw water from a standpipe in order to find out whether or not it is full of water.
16. T F—The capacity of a steam fire engine depends only on the bore while that of a gasoline engine depends on the number of cylinders as well as on the bore.
17. T F—A pressure of 60 to 70 pounds at a two-inch nozzle will throw a stream of water the maximum distance for that nozzle.
18. T F—A fire in a drug store, otherwise unaccounted for, might, under certain rather unusual conditions, be due to a gold fish bowl displayed in the window.
19. T F—High pressure steam pipes in contact with wood constitute a real fire hazard.
20. T F—Smoke and fumes given off by hemp, jute and sisal when burning are toxic.

Completion Statements

21. In order to facilitate the extinguishing of fires in modern industrial buildings they usually have installed as a part of their permanent, immovable equipment ..... and .....
22. When fighting a fire, if locked doors are encountered members of the force, before breaking the doors, should try to ..... them.
23. Dust that will ..... may be explosive.
24. The highest floor of a building (12 feet per story) on which a water tower can operate with full effectiveness is the ..... floor.

Answers to Questions in Previous Issue

1. Although the problem does not explicitly state such, it will be assumed that at the time fire is discovered the tenement house is well filled with occupants, and that they have not been notified of the fire. Under these conditions the life hazard will be extreme. The fire hazard will also be severe due to the exposure fires caused by embers. It will be further assumed that I arrive with an engine company, and am followed by two other engine companies and two ladder companies.

Assuming that I am the first officer to arrive, and roll in with my engine company on a box alarm, my operations would be as follows: I would immediately order transmission of second alarm.

Life hazard must receive first consideration. First engine company will therefore stretch in two lines to the stairwell, and kill the fire around the stairwell if such is possible. If the fire has originated in the basement, one of the lines will be assigned to cover the door leading to the basement within the building.

First truck company ordered to send two men to the roof at once to ventilate by opening up over stairwell, and removing hatch covers from roof.

Balance of ladder company go through the building and, by using stairways, if such are available, get all tenants to the street.

If stairways cannot be used, then ladders will have to be placed front and rear in attempt to get the people out of the building to safety.

In any case, ventilation and prompt use of streams to hold the fire are absolutely necessary.

If there are buildings on either side of the fire building through which persons may get from the upper floors of the tenement house, these means would be employed.

If necessary, in the operation of saving life, second due engine company would be ordered to stretch in line to operate at such point as conditions require.

If line is not immeditely necessary in the saving of life, this company would be assigned to covering exposures to neighboring buildings, where roofs have already ignited from embers.

In accomplishing this, a single line may be stretched from pumper, and branched into two small diameter lines with small nozzles for covering the neighboring roofs. Third engine company would be placed in similar service.

Upon the arrival of additional apparatus, it would be assigned to operate on the fire, and all efforts would be made to hold the fire from extending until the arrival of a superior officer.

2. If a motor pumping engine (centrifugal) rated at 300 pounds pressure is hooked up in tandem with a high pressure hydrant, delivering 300 pounds pressure to the pumper, the pressure at the discharge outlet of the pumper would be somewhat less than 600 pounds assuming that the pumper was delivering an increase of pressure of 300 pounds to the water which is supplied to it by the hydrant. The difference between the pressure at the pumper outlet and 600 pounds is due to the loss of pressure by

friction of the water when passing through the pumper. In answering examination questions it is usually assumed that the pressure at the discharge outlet of the pumper will be equal to the pressure created by the pump, plus the pressure of water delivered to it. In this case it would be assumed that the discharge pressure is 600 pounds.

The discharge from the pumper under the above conditions would be the same as that delivered by the hydrant, the only function of the pumper in this case being to raise the pressure. As a general rule, any pressure delivered to the pumper by a hydrant makes it possible for the pumper to discharge more water at a moderate pressure. It is the power of the gasoline motor which determines the performance of a pumper, and if the gasoline motor is helped in its work by the pressure furnished by the hydrant, it can naturally operate at a higher speed when under this pressure, thus increasing the discharge.

3. Practically all animal oils used in commerce are susceptible to spontaneous ignition. Among these might be mentioned tallow, oleo oil, lard oil, bone oil, neatsfoot oil, red oil, and fish oils.

None of them is volatile.

The normal flash point of these oils centers around 500 degrees Fahr.

4. False; 5. False; 6. True; 7. False; 8. False; 9. False; 10. True; 11. True; 12. True; 13. True; 14. False; 15. True; 16. True; 17. True; 18. False; 19. False; 20. True; 21. True; 22. True.

23. . . . ignites.

24. . . . higher. . . .

25. . . . conduction . . . convection . . . radiation. . . .

26. . . . carbon tetrachloride . . . soda and acid. . . .

New Stations Urged for New Orleans

In a report of the Fire Prevention Committee of the Association of Commerce, New Orleans, La., it was recommended that the city build seven new fire stations, abandon eighteen houses, and relocate some of the others.

Walker K. Grant, engineer, Louisiana Rating and Fire Prevention Bureau, was consulted and approved the report. He urged that the present repair shop be moved to larger quarters.

The National Board of Fire Underwriters concurred with all the recommendations, except that they urged a different location for one of the ladder companies.

N. J. Cuts Fireworks Accidents

As the result of a state law in New Jersey, enacted a couple of years ago, which prohibits the sale and use of fireworks except under supervision at a public exhibition, the number of accidents as the result of Fourth of July celebrations has been cut sharply. In 1927, there were 927 accidents in the state. This year the number was cut to 36. There were a total of 31 prosecutions for violations of the law in fourteen communities.

The law was the culmination of many years of hard work by the Fire Chiefs in the state, and a number of other organizations. While the law prohibits the sale and use of fireworks, it makes possible public display of fireworks in charge of a competent operator. This year 101 permits were issued for public fireworks displays.

By William Paul Babcock

"The King is dead. Long live the King!"

"Requiescat in Pace!"

"They cut down the Old Pine Tree!"

"The last alarm!"

Gee, I can't choose a suitable heading this time.

What I mean is, they've disbanded Fire Patrol No. 1, in New York City.

What, you might ask, does that mean to me? Well, Brother, that's like selling the old farm, or somet'n, for I knew them way back, when . . .

It was in 1916 that I was in business downtown in Manhattan, and while an enthusiastic volunteer fireman, what I didn't know about New York smoke-eaters was plenty.

We had organized a "Fire Patrol" in the home town, Nyack, on the Hudson, principally to keep the crowds back, as the Police Department said *he* couldn't do it alone.

One morning I found the office burned out and a fireman on duty, whose badge, like mine, read "Fire Patrol." Then for the first time I saw "salvage covers" and was immediately sold on their value. The home-towners instructed me to get more dope about this new method of fire-fighting, with the result that I met one grand guy, the "Skipper" of Patrol No. 1, then located at 41 Murray Street.

Shortly thereafter one of my buddies and I spent a week with Capt. Albert Sidney Johnston at the above location, and received our first taste of salvage work.

I recall distinctly that the officer in charge of our first trick to "strip" covers was none other than "Bill" Cashman, now conducting that invaluable salvage school.

It was tough enough when they moved No. 1 over to the new quarters near Mulberry Bend, for the old place seemed like home. But now to have this outfit mustered out—I just can't take it!

However, we have some mementoes to keep alive the memory of those days, not the least of them being the old sign *"Fire Patrol,"* which now graces the quarters of my home town unit, which, of course, is the offspring of New York Fire Patrol No. 1, and here's hoping the child, now in its youth and just coming of age, will always be a credit to its beloved daddy—

"Gone, but not forgotten!"

Ex-Chief McKinney Dead

George P. L. McKinney, retired Chief of Norman, Okla., died of heart trouble. He retired from the fire service on July 1, 1927.

Wisconsin Paid Firemen Meet

The thirtieth annual convention of the Wisconsin Paid Firemen's Association was held at Wisconsin Rapids on August 3 to 5. George Johnson, Racine, was re-elected President and William H. Schultz, Sheboygan, re-elected Secretary-Treasurer. Elmer Schoen, Green Bay, is Vice-President.

Gasoline Tank Explodes and Fires Several Tank Cars

Eight men were hurt when a gasoline tank exploded at the Sinclair plant, East Chicago, Ind. Fire spread to several tank cars and threatened an adjacent supply of gasoline. Prompt fire-fighting methods prevented the blaze from doing greater damage. The photograph shows foam being applied to the burning tank cars.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

SALVAGE WORK IN THE FIRE DEPARTMENT

FOR years, there used to be a standing accusation that the firemen would throw out a clock from an upper floor window and carry down a mattress. There may have been some foundation of truth for it, and then again, perhaps not.

It does indicate, however, a crude attempt at salvaging the contents of a residence. It is a relic of the days when damage to the contents of a building were always much higher than the fire damage to the building.

Now, salvage work has become an important part of Fire Department operations. While firemen are trying to extinguish the fire, others cover up furniture, or stock if the fire is in a store. Before the firemen leave, any openings made in a roof, door or window, are covered to keep out rain or snow. Nor is that all. Excess water is swept out, floors are mopped up, and the premises left in as good condition as possible.

This round table is devoted to a discussion on salvage work. The problem in full appears in the box on this page. In the box on the following page is the question that will be treated in the next issue plus the continuation of the discussion on salvage work.

Discussion of the Question

Ralph J. Scott, Chief, Los Angeles, Cal.: The Los Angeles Fire Department has about 1,100 salvage covers in service, approximately half of which are on rigs and the remainder in reserve.

We have eight regular salvage wagons, each equipped mainly with covers. Four salvage wagons carry sixty-five covers each, three carry forty each, and one carries twenty-five, all with equivalent amounts in reserve. Each of our twenty truck companies carry six covers, with six in reserve. Many of our engines, especially in the the outlying districts, carry two or more covers.

Our experience has shown that eight years is the reasonable life of a salvage cover.

The use of salvage covers by Fire Departments is no longer an innovation, but is practiced in greater or lesser degree by most of the major departments of the country. To claim that the vital function of a Fire Department is to respond to fires for the sole purposes of confining fire to its place of origin, that no one but the insurance companies are concerned in the preservation of property exposed to water and smoke damage in the premises where fire occurs is to attempt to revive a fallacy which has been thoroughly discredited long ago. Premium rates are scaled by the fire loss yardstick (which includes fire, water and smoke damage). They are raised when excessive losses prevail, and the insurance company is in the capacity of an agency which broadly distributes the losses. Property which is destroyed is lost to every useful purpose.

By the intelligent use of salvage covers, the Fire Department is performing a civic duty for the benefit of every citizen. Smoke and water damage constitutes such a large proportion of the total loss when fire occurs, that the duty to protect personal property to the fullest extent possible cannot be minimized.

E. A. Traeger, Chief, Minneapolis, Minn.: Salvage work is performed in this department with the cooperation of and in conjunction with the salvage corps.

We have 128 salvage covers in the department. Whenever covers are all in use or temporarily unfit for use in any of the companies, covers are furnished us by the salvage corp.

Covers are part of the equipment of all engine and ladder companies in districts not covered by the salvage corps. Our experience leads me to believe that the life of a cover is determined by its quality and by the care it receives and the purposes for which it is used. This is indicated by a perusal of our records which disclose that of the lot purchased in 1929, fifty per cent is still in service; in 1930, twenty-eight per cent still in service; and in 1931, one-third still in service.

Many benefits result from a department doing salvage work, such as saving property from damage from fire and water with resulting lower fire losses. It has a tendency to make the personnel loss and water conscious at fires. The most outstanding and beneficial feature of a Fire Department doing salvage work, in my opinion, is the appreciation shown by the owners and occupants of premises involved in fires, which affects favorably the prestige of the Fire Department and as such is of untold benefit to the personnel where improvement of working conditions is concerned.

W. Q. Dowling, Chief, Jacksonville, Fla.: We perform salvage work in our department and carry sixty covers on the hook and ladder trucks. There is no way of computing the life of a cover, as it depends upon the use they are put to. Our covers are inspected after each time used and if damaged, they are repaired, but if too badly damaged, they are discarded. We have some covers that are more than ten years old, and are in perfect shape. There is no way of estimating the benefits of salvage work. When we arrive at a fire, the men commence covering up, and the stock or furniture is protected from water. It is also protected from sparks to a great degree. I consider salvage covers one of the necessary parts of a Fire Department equipment.

One of the members wrote the following relative to salvage cover work.

"Salvage work is nothing more than an advanced step in fire fighting. In all fires there is a certain amount of salvage work to be done, if a good job is to be done. This salvage work begins even before the fire starts and continues after the fire is out, and until the property is repaired or replaced."

The benefits derived from salvage work in a Fire Department are too numerous to mention, but I think some of the most important ones are as follows:

First, it saves property that would otherwise be ruined or damaged, in that it keeps a lot of unnecessary water out of the building. Second, it lessens the work and hazards of a fireman. If more water than is needed is used on a fire, it takes extra work to clean up and the more water you put in a building the more liable it is to collapse and injure someone.

And last and I believe one of the greatest benefits is, that it is one of the most outstanding selling agents that a Fire Department has. The good merits of a department must be

HERE IS THE PROBLEM

Do you perform salvage work in your department?

How many covers have you?

On what apparatus are they carried?

What do you consider the useful life of a cover?

What benefits do you believe result from a department doing salvage work?

sold to the public. You can pretty well judge a Fire Department by the kind of salvage work it does.

J. P. McCosker, Chief, Bangor, Maine.: We perform salvage work in our department and we have fourteen covers. All our pumpers carry covers and we also carry them on our ladder trucks. In fact, each piece of apparatus has covers.

A good cover with careful care should give about five to seven years service. But it, of course, all depends upon how the cover is used and where it is used. We do know that the salvage cover should be of good material to begin with, and when any holes appear in the cover it should be put out of use as a salvage cover. It has served its usefulness as a salvage cover when it shows much signs of rough wear.

Many benefits result from a department doing salvage work. There is the great saving accomplished by covering up immediately all exposed goods, furniture, etc. Fires that could run into large losses are lowered considerably by the use and aid of salvage work in a department. It may be a large store or simply a dwelling house, the ends reached are the same. Goods are saved that otherwise would have been ruined. Salvage work is a very important (or should be) part of any Fire Department.

Wm. J. Sands, Chief, Quincy, Mass.: Every member of our department has been drilled in the most approved methods of salvage work. Our drill masters have observed the methods used by the Protective Departments of both Boston and Worcester, and have copied their methods on a smaller scale. Each piece of apparatus carries at least three covers, and the busy ladder companies carry seven covers. The department has fifty salvage covers in all.

With proper care and attention, we find our covers last on an average of at least ten years. We have covers fifteen years old and still in excellent condition.

Effective department salvage work has cut our fire loss, particularly the loss resulting from water, at least twenty-five per cent. We have found that the heaviest loss from fires comes from water and not fire, consequently we try as much as possible to cut down water loss.

W. P. Weeks, Chief, Battle Creek, Mich.: We do perform salvage work in our department. We have forty Shuredry covers in service. We have been using this kind of cover for the past twenty years. We carry four covers on all pumping engines, and ten covers on each service truck. We have covers in service that are fifteen years old. Each time they are used we check them for holes, and they are always washed after each fire in which they are used. All covers bear a serial number, also the number of the company to whom they belong, and the date on which they were put in service.

This service reduces our water loss on contents, and is appreciated by the public.

H. C. Crumb, Chief, Bay City, Mich.: In a town the size of Bay City it is quite necessary that we do our own salvage work, if there is any to be done. We have twenty-four covers and six of them are carried on each of the two service trucks, keeping the other twelve in reserve and shifting them about once a month.

As to the life of the covers, I cannot say, but we have some that are five years old, and I cannot see that they are worn. I think with proper care, and by that I mean thoroughly washing and drying after each time used, and continually patching any burned or torn spots, that good covers will last a long time.

I think that the results obtained from the use of covers in this town has more than paid for their cost, for I have any number of letters from interested parties who have had fires, commending the Fire Department on the small water loss at their fires.

Wm. J. Lutz, Chief, Wilmington, Del.: We perform salvage duty in the best manner and it is of great benefit to the public, as well as to the Fire Department. We have thirty-six salvage covers, twenty-two of which are carried on the squad apparatus and four on each ladder truck. The present covers that we have in service were purchased in 1923. The results derived from the salvage covers and salvage work has been very beneficial, and the fire losses can be reduced by the use of salvage work along with the use of salvage covers. The Department is strong for salvage work, in order to keep fire losses to the minimum.

On the squad apparatus all kinds of equipment for saving life and the preservation of property is carried. Following is the list of tools and appliances that are carried on this apparatus:

One inhalator, one Ross thawing device, one Airco burner outfit, two 1 quart Pyrene guns, one 1 gallon Pyrene gun, two McCaa oxyger masks, two Burrell gas masks, two ammonia masks, two rubber ammonia suits, one National first aid kit, one half inch rope, 150 feet, one three-quarter-inch rope 180 feet, two oil flares, one life gun, one 8-pound can bicarbonate soda, two hatchets, one ball hammer, two pairs safety glasses, one hack saw, one saw, one compass saw, two pipe wrenches, two bale hooks, six sprinkler heads, two wall chains, two galvanized buckets, twelve 12 by 15-foot tarpaulins, one electric hand lantern, one 1,250-watt generator complete, two 150-watt floodlights, one electric drill, one Gilson water curtain, three star drills, three sulphur candles, 300 feet wire cable, two 19-pound sledges, six hose straps, four wedges, two pairs rubber gloves, two pick head axes, one fire freeze tank, one 2½-gallon Phomene tank, one 2½-gallon chemical tank, one New York wall nozzle, one adjustable spray nozzle, one ¼-inch controlling nozzle, two straw brooms, two mops, two floor squeeges, two scoop shovels, one roll roofer felt, one five-pound can roof nails, one cooper hose jacket, one siphon and fittings, two snatch blocks, two tin roof cutters, one Hale door opener, perfection pipe holder, one wall hook, three sprinkler stops, three 5-ton jacks, one hose clamp, two pinch bars, four 100-foot electric extension cords, one 500-floodlight, two 250-watt floodlights, one electric hammer, one pair wire cutters, one gas stop, one bundle lath, one 100-foot 2½-inch hose and one vapor nozzle for oil fires.

A. MacC. Marsh, Chief, Columbia, S. C.: We perform salvage work in our department and have forty-four covers. Most of our covers are carried on our service truck, aerial truck and two or three are carried on one of our pumpers.

The life of a cover depends on the attention and treatment given it. We started salvage work in our department in 1925 and some of the covers that we started with are still in use. We give our covers careful inspections. We have a machine that we use for patching holes in these covers. If covers need to be re-parafined, we have a formula for doing this.

By using covers, a department will reduce its fire loss from water to a minimum. Prior to the use of salvage covers by our department, our fire loss from water damage amounted to seventy per cent and from fire damage thirty per cent. We find after using these covers that we have reduced our damage from water to thirty per cent with fire damage amounting to seventy per cent.

E. F. Coop, Chief, Pasadena, Cal.: We have twenty-two salvage covers in our department and carry them on the following apparatus: Light and rescue car, squad, aerial truck and service truck and service truck.

We have used the covers we now have on hand approximately twelve years and consider the average life about fifteen years. We use the regulation rubberized cover, and these have been in continuous service and appear to be in very excellent condition at the present time. Certain minor repairs have been made where holes have been made by nails, etc., otherwise they are in excellent condition, and we attribute this long life to the fact that they are regularly serviced.

The direct benefits derived from doing salvage work is that property is saved for our citizens. Indirect benefits are also that favorable public relations, and publicity results from efficient salvage operation.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

About what percentage of alarms do you receive over the telephone?

What precautions do you employ in recording telephoned fire alarms?

Have you found any effective method for verifying them, and if so, how is it done?

Have you had any complaints of the Fire Department failing to get a location of fire correctly over the telephone?

Do you believe there is need for some method of accurately recording telephone alarms automatically as they are received?

And Also

The continuation of the round table discussion on salvage work in the Fire Department.

A. C. Du Ree, Chief, Long Beach, Cal.: Salvage work is done by truck, squads and one outlying engine company. We have sixty 12x18-foot canvas covers. They are carried on the aerial ladder, two squad and one engine company. (This engine company does not have access to ladder or squad service.)

Five years of nominal service, in my opinion, usually takes the best out of a cover. The major benefit is the reduction of loss at each fire. Salvage work educates the firemen in the use of water and opening-up procedure. Our low fire loss has proven this point.

J. Carrington, Acting Chief, Washington, D. C.: We perform salvage work in our department and have seventy-five 12x18-foot salvage covers in use. They are carried on all engine, truck and rescue companies. The life of a cover, in my opinion, cannot be determined.

Reduced incidental loss and better service to the taxpayer at little increased cost, are the oustanding results of salvage work. Covers will pay for themselves in comparatively short time.

L. L. Geisler, Chief, Johnson City, Tenn.: The Fire Department of this city has been doing salvage work for the past ten years. We have twenty-five covers which are carried on a one-ton truck which answer all alarms. On this truck we also carry a lighting plant, brooms, mops, shovels, sawdust, building paper, roll of roofing, gas masks and inhalator.

I think that about five years is the average life of an ordinary salvage cover. By doing salvage work, we have reduced our water damage considerably and performed other salvage work which has made several friends for the Fire Department and saved the property owners thousands of dollars.

M. P. Leonard, Chief, Erie, Pa.: Salvage work has been an important part in our department for the past twenty years and has helped immeasurably in cutting our losses from water damage. We carry fifty-four covers on our ladder trucks. They are used in covering shelves, and where goods are placed on counters or tables, are placed below the floor involved by fire, thus protecting from water coming from upper floors. In residences, furniture is piled close and covered. We have had excellent results. Covers are also used on roofs to protect the occupants until damage to roof can be repaired.

The life of a cover depends upon the uses required of them, and the care given to them. We have covers lasting many years, but they have always received good care.

Irby M. Klinck, Chief, Memphis, Tenn.: The Underwriters Salvage Corps maintain their own Patrol in this city. They carry 450 salvage covers. Covers are carried on three specially designed salvage trucks. Also these trucks carry all the necessary tools and appliances for salvage work.

The life of a cover depends on its use and care. The Salvage Corps have some in service bought in 1918. (Average life is about fifteen years.)

The Underwriters have maintained its own Salvage Corps in this city for nearly half a century and it has rendered highly efficient work not only in salvage duties but rescue work, emergencies, etc., as well.

J. Ray Roe, Chief, Abilene, Texas: We do salvage work and have thirty-six covers. Truck company has two covers, chemical company has six covers, and each engine company carries two covers. The life of a cover depends upon the location of the company carrying the cover and the care given the cover after use. I would approximate five years as the life of a cover.

Salvage work has many benefits which can be attributed to it. It sells the department to the public and does away with the old saying "Insure against the Fire Department, not the fire." It lessens water damage, lowers fire losses and insurance rates.

N. Taupier, Chief, Pawtucket, R. I.: We do salvage work in our department. We have thirty covers which are carried on the ladder trucks. The life of a cover depends on the use and care given it. We have had our covers over ten years and they are still in first class shape and giving us good service.

The greatest benefit from the use of covers, I believe is the help in keeping down the fire loss by saving water damage. In business buildings equipped with sprinklers, a great many times more damage results from water, than from fire. In dwellings fires, we cover entire rooms full of furniture, thereby helping the small property owner, insured or uninsured. All of this helps to keep our fire record low and so benefits the Fire Department.

A. Saricks, Chief, Wilkes-Barre, Pa.: We perform salvage work in our department. We have twenty-two covers, carried on the Chief's car and engine and truck companies.

With the exception of possible accidental tears or spark burns, and with careful handling and occasional examination, the life of a cover should be approximately from ten to fifteen years.

In a department doing salvage work, losses are kept down to a minimum from water damage, after the fire has been extinguished, or during the duration of the fire.

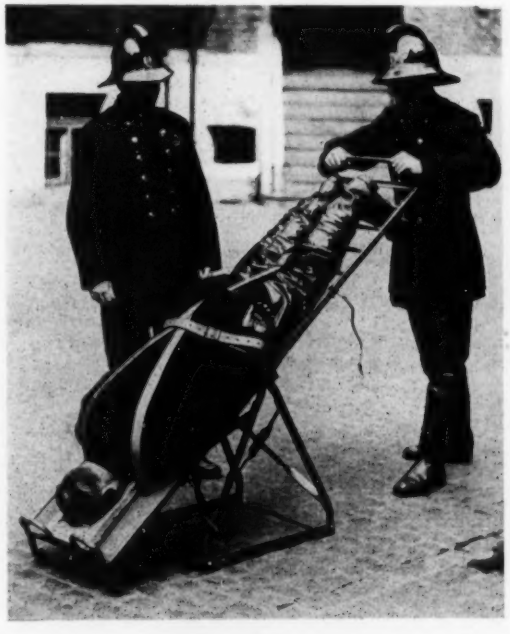
J. Savage, Chief, Orange, N. J.: We have twelve salvage covers for this work in our department and carry them in a special compartment on the aerial truck. These covers have been in service over twelve years and are still in good condition. They are carefully washed and dried before being used again after each usage.

They serve mostly to decrease the fire loss from water. We have used them to cover roofs, to prevent a further water loss from rain when the roof is burned off. They have been used to protect merchandise in store windows, when on various occasions the windows have been shattered. These covers are indispensable to this department as they afford protection to the meagre furnishing of people who are unfortunate and have no insurance protection on their belongings.

A. C. Melendy, Chief, Nashua, N. H.: We do not have a regular salvage corps, but every man is trained in the use of the salvage covers so that any one may be called to lay these whether at a fire or otherwise.

We have at the present time twenty-four covers, distributed throughout the department. They are carried on the ladder trucks and the flying squad. We have had unusual good service with our covers and are still using some that were purchased over ten years ago. The useful life of covers depends on the use and care of them. By keeping them in good repair and inspecting them each time after use, they will last indefinitely.

The benefits derived from use of salvage covers by a department can be arrived at in different ways. First, the damage from water is lowered considerable by their use. Second, the person whose property is involved in fire is not inconvenienced as long as if there were no covers spread, due to the fact that the water soaks into everything and by the time the dampness is out of the property, there has been a long delay in replacing it in good condition. Third, if a merchant's property is involved, the longer he is



It's Up and Down for the Suffocation Victim

Here is an English device which has been designed to provide artificial respiration for victims of drowning or suffocation. The Eve Riley Resuscitation Table provides a rocking action to the victim who is strapped to the table. In the head lower position, the internal organs shift forward, and the lungs are compressed. When the feet are lowered, the organs go back to their normal position, and there is a slight expansion of the lungs.

out of business, the more customers he loses. Therefore, if he is delayed a long time in reopening his store he has a large amount of his regular customers who may be going to another business house and who will stay with it. Lastly, the more salvage work that is done to protect the property of the public for whom you are working, the more they appreciate your services.

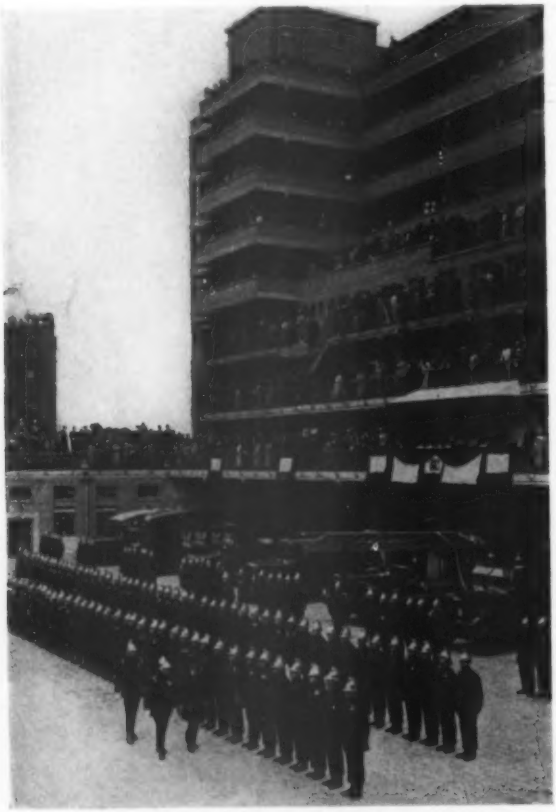
L. F. McDonald, Chief, Jackson, Miss.: I am glad to state that I was converted to the idea of Fire Department salvage work about thirteen years ago. For years I had read a great deal about Fire Departments equipping their apparatus with salvage covers and could not see how they could extinguish fires efficiently and handle salvage covers with such a small fire-fighting force. I dug into this idea by talking with Chiefs from other states, during our conventions, who had been experimenting with this work. I was convinced that they were saving just about as much property with their covers, as they were with their other equipment.

So I equipped my city service truck with a dozen covers, aerial truck with one dozen, and six engine companies with two covers each. I have been convinced by my own experience that we could not get along in this city without our covers. We have saved many thousand dollars worth of property with them and have received many complimentary letters and donations on account of saving property with our salvage covers, that would otherwise have been ruined by water without covers. With proper care, salvage covers will last five to six years.

R. J. Van Fleet, Chief, Hastings, Neb.: This department does salvage work of all kinds. We have at the present time, nine covers and two debris carriers for this work. All apparatus carries covers so that each company can perform salvage work when working alone. The useful life of a cover depends a great deal upon the care given the cover. If they are kept in a clean condition, dry and not abused, they should last several years, depending upon the amount of service. We do not use our covers to patch roofs, etc. We always cover the opening in a roof with tar paper and lath, and in that way increase the life of our covers.

The benefits derived from salvage work are numerous. First, it reduces the loss from water, and in many cases, prevents any loss whatever from water. Second, our covers are used for rug and floor coverings when working at a fire so as not to carry mud, snow, etc., into the building. The debris carriers are used to remove debris from the building.

The general public appreciates salvage work of the department, as it lessens the work of cleaning up after the department has gone from the scene of the fire. In many instances, the department leaves the premises in the same condition as when they arrived and there is no additional work to do. Where a department does salvage work, the citizens look upon the department in another light, not as wreckers, but as men who are doing their work and doing it in a businesslike manner.



His Majesty, King George, Inspects London Station

A large crowd watched the inspection of the new headquarters of the London Fire Brigade by King George. The building was constructed at a cost of nearly £390,000. The photograph shows His Majesty inspecting the firemen.

Robert Jones, Chief, Chattanooga, Tenn.: A considerable amount of salvage work is done in this department. At the present time we have twenty-one salvage covers in service. The covers are carried on our aerial and city service trucks and are available for use on every alarm. The useful life of a cover depends on its usage and care. Covers should be washed and thoroughly dried after use and should be kept dry and clean at all times. Nothing would be gained by making use of covers that are not kept clean and will not give protection from water.

Conservation of loss should be the goal of every Fire Department, and the road towards that end are the benefits derived from the salvage work carried on in the Fire Department. The principles of salvage are sound and are an important factor in the welfare of every Fire Department regardless of its size. A marked improvement is shown by the modern methods of fire fighting over the old in the fact that firemen today have been taught to think and to conserve instead of destroying property. Priceless articles and memoirs that could not be replaced have by the use of salvage work been preserved. The benefits derived from salvage work are numerous.

H. J. Callahan, Chief, Fort Dodge, Iowa: This department has practiced salvage work for the past twelve years. We have twenty salvage covers 12 x 18 feet in size. We also carry squeegees, brooms, shovels, and sprinkler tongs. At headquarters, we maintain a supply of sawdust in 100 pound bags for use in salvage work. It is very hard to say what is the useful life of a cover. It all depends on the use and the care that are given the covers. We have covers that are ten years old, still in good useful condition.

The benefits derived from salvage work are almost too numerous to mention. First, it reduces fire loss, which also includes damage to property from water, smoke or the elements. It allows the occupants to get back into the property with less delay and less muss than was formerly the case. It creates a better feeling on the part of the taxpayer toward the department and is the best builder of good will that I know of.

V. E. Gerry, Chief, Sanford, Me.: We perform salvage work in our department and are equipped with six covers which are carried on the ladder truck. The life of the covers depends on how they are taken care of and also what materials they come in contact with at fires, other than water. I believe that salvage work has made a difference of at least 75 per cent from water damage.

Geo. Boughner, Chief, Grand Rapids, Mich.: We have been using salvage covers since 1915 and at present have 130 12 x 18-foot covers in use, carried on all apparatus. Previous to 1915, the history of the department showed content loss far in excess of building loss. After installing covers, content loss has exceeded building only one year. I believe this is evidence enough to convince everyone that salvage work pays big dividends, compared with the cost of the covers.

W. C. Mahoney, Chief, Peabody, Mass.: We have in use in our department twenty-eight salvage covers carried on ladder and engine company apparatus. The useful life of a cover, I would say, is about ten years. Many benefits result from use of salvage covers, such as reducing insurance rates, protection and saving for those not insured, and protection of many articles that cannot be replaced. The use of covers has in many cases prevented the necessity of families looking for temporary places to live after a fire. Large families in poor circumstances would find this difficult. We have been commended for salvage work by citizens and the de-

partment is given a better standing in their respective city or town.

D. W. Brosnan, Chief, Albany, Ga.: We really do salvage in this department in every particular. We have sixty covers, 40 on ladder trucks, and four on each engine. Six years is the life of a cover when properly cared for. The benefits resulting from salvage work are losses reduced at least 40 per cent, and the service to the public brings commendation to the department.

H. R. Taft, Chief, Norwich, Conn.: We perform salvage work. We have six covers. With proper care and treatment covers will last 20 years. The benefits a department receives from such service is that it cuts down the damage and losses and also establishes a better standing in the community especially among those who suffer the loss.

We perform salvage work whenever necessary. At the present time we only have six covers with which to carry on such work, and we are greatly in need of more. The covers are carried on the aerial truck but I believe at least two or more ought to be carried on each engine company.

J. A. Fisher, Chief, Duluth, Minn.: Yes, Duluth has a Salvage Patrol located at Fire Department Headquarters maintained by the Fire Insurance Underwriters. We have about two-hundred covers. We carry covers on all ladder companies and on engine companies in the outlying districts. The life of a cover depends on the amount of service it is put to, and it may average nine years in our city.

Salvage work is a big factor in our department. Covering merchandise in store buildings and furniture in residential districts helps materially to cut down our fire loss.

G. L. Frock, Chief, Springfield, Ohio: We do salvage work in our department and we have about twenty-eight covers in two sizes, that is 10 x 14, and 14 x 22.

We carry one on each of our four pumpers, four in stock, eight on our aerial truck, and six on each service truck. Some of our tarpaulins are fifteen years old and are still giving service as we take good care of them and have them repaired whenever needed.

When a Fire Department in a city of our size does salvage work, they not only make friends for the Fire Department, but in many cases save priceless things for the persons having the fire, such as family pictures and heirlooms. In our city, as in many others, we find that a great number of people do not carry household insurance and in such case we are being a good neighbor.

We have cut our contents losses about fifty per cent in this city by doing such salvage work, as much as our small manpower will permit.

L. E. Reif, Chief, New Haven, Conn.: We do salvage work and have 80 covers distributed on all hook and ladder companies. We have some twelve to fifteen years, and they are still serviceable. Salvage work helps to reduce the fire losses by less water damage. However, at the present time not having any salvage company and being short in man power, I do not think it practical to try and salvage $7,000 worth of property and in so doing, have a fire loss of $10,000, as a result of the salvage work performed. Use your best efforts to extinguish the fire first, then do your best to salvage property.

Herman Steinfurth, Chief, Youngstown, Ohio: We're for salvage work. We have found it reduces losses considerably. We have thirty-two covers 16 x 18 feet which are sufficient for any emergency. We have at least fourteen at each residential fire where we use them very extensively for roof and attic fires. We carry them on all apparatus. Our covers have been in service about four years and longer. They get the best of care and are patched as soon as damaged.

At many fires, where the entire roof has been destroyed by fire, we have our covers arranged in such a way, that no water damage is done upstairs. We have had many compliments for such work. I personally recommend the covers highly. Without them our losses would be much higher.

J. T. Maguire, Secretary, Fire Department, St. Louis, Mo.: We do no salvage work in this department. However, the Underwriters Salvage Corps, maintained by local insurance companies, does do this work.

H. Taylor, Chief, Rome, Ga.: We perform salvage work in our department to a certain degree, not being fully equipped to carry it on as we would like to. We do not have salvage covers. I believe that salvage work in any Fire Department is very important and will save half on your fire losses, when carried on in the proper manner. We plan to do salvage work in the near future.

L. P. Willis, Chief, Pueblo, Col.: We are very sorry to say that we do not have but one salvage cover in our department, as our finances have not permitted the purchase of the covers. But each year I include requests for them in my appropriations and some day, hope to be able to make the purchase.

W. A. Buel, Chief, Parsons, Kan.: We perform salvage work in this department in a small way as we only have six covers, that are carried in the trunk of the sedan used by the Chief. Our covers last us about eight years, and we find this service very valuable especially in the large residences and the service is very much appreciated.

J. J. Cullinan, Chief, Morristown, N. J.: We originally bought good covers. They have been in service nine years and I believe they are good for at least nine more years. We have thirty-eight covers carried by the Salvage Patrol.

Salvage work by our department has resulted in keeping down the fire losses at least twenty-five per cent and I recommend that salvage covers should be carried by all departments for they surely keep down water damage losses.

Chas. A. McGinley, Chief, East Orange, N. J.: East Orange is a residential city, and without the use of covers in this department I know the losses on contents of buildings would be much heavier than they are. We often use covers to protect openings that have been made in the roof of a building, and this prevents further loss or damage until the owner has had time to have the building repaired.

W. N. Bates, Chief, Elyria, Ohio: We perform salvage work and have four salvage covers which are carried on hose car and ladder truck. We have no record to judge the useful life of a cover.

We have saved from dirt and water damage, a great deal of the contents of buildings because of the use of salvage covers. The Fire Department also carries a roll of the lightest roll roofing, to patch holes in roofs and close in broken windows and doors after fires. We also carry squeegees, mops, brooms, etc., and thoroughly clean up the premises after each fire. This service seems to be very much appreciated by the people.

L. Canfield, Chief, Beverly Hills, Cal.: We do salvage work. We have six covers on our ladder trucks and three on all engine and hose wagons, totaling eighteen covers.

The minimum life of a cover is ten years. We use wax and other water proofing for treating canvas covers, made by the Carnie Tent Company, Sacramento. I believe they are of more value in a small city than rubber covers. They require less care and handling to keep them in shape, than do rubber covers, and I believe the life is longer.

Salvage work possibly does more to save loss of property than any other operation of the department (except using small hose lines). It also does more for the department in the way of public good will than any other activity.

Wm. G. Lutkey, Chief, Oakland, Cal.: We perform salvage work in our department. We have 110 covers which are carried on all apparatus. We have covers used since 1932 that are in very good condition. It is difficult to give definitely the life of a cover on account of the rough work they get. A reduction in the fire loss from water damage is the result of salvage work.

J. Ed. Schmitz Dead

Word has been received that J. Ed. Schmitz, Sr., who, at one time, for many years was Manager of the Dallas, Tex., branch of the American-LaFrance Company, died in that city last week.

The late J. Ed. Schmitz

Mr. Schmitz, one of the old-timers in the fire apparatus business, was widely known among Fire Chiefs throughout the Southwest.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Dead End Mains

To the Editor:

It is generally agreed that pumpers should not connect to hydrants on dead end mains.

Will you please answer why and give me a brief resumé of the dangers and disadvantages thereof.

Thank you. J. J. E. G.

Answer: The reason that dead end mains are usually avoided is because of the possibility of constricted flow. Where a main of small diameter is fed only from one end, the amount of water it can supply may be less than the engine will require. For this reason small dead end mains are usually avoided when placing pumpers at hydrants.

Chemical Hazards, Etc.

To the Editor:

Will you kindly answer the following questions:

1. Two 1,200-foot lines of 2½-inch hose are run from a pumping engine and siamesed into a deluge set, and are discharging water at a nozzle pressure of 45 pounds and at a rate of 300 gallons per minute. How would you determine the size of the nozzle used and the approximate pump pressure?

2. Fire involving the first floor of a building causes 30 sprinkler heads to open. The pressure on the system is 25 pounds. A pumping engine is located 100 feet from the sprinkler connection. What size engine would be required?

3. What two chemicals are used as fumigants in flour mills? What are the hazards from each in regards to fire and life?

4. What important item should a fire officer keep in mind at a fire in a building equipped with an automatic sprinkler system? What attention should be given to an exposed building equipped with automatic sprinklers?

5. What definite rules have been laid down for the effective direction of fire stream?

6. Name three oils found in industrial plants that are subject to spontaneous combustion. Name three that are not subject to spontaneous combustion.

7. Name three liquids, three solids, three gases, state where found, the characteristic of each and hazards of each.

8. How would you handle a fire in an automatic electric doughnut machine? What are the hazards involved in such machine?

9. What are the hazards of cellophane? Give two most important services obtained from fire walls, give precautions to be taken for protection of openings therein. D. M.

Answer 1: To find the nozzle diameter in this problem we use the discharge formula which is:

Discharge (gallons per minute) = $30 \times d \times d \times \sqrt{p}$.

Where "d" is the nozzle diameter in inches and "p," the pressure in pounds per square inch at the nozzle.

Substituting the values which we know from the problem in this formula we get:

$300 = 30 \times d \times d \times \sqrt{45}$.

$300 = 30 \times d^2 \times 6.75$.

Transposing we get $d^2 = 300 \div (30 \times 6.72) = 10 \div 6.72 = 1.49$.

Thus d^2 equals 1.49.

"d" would then be the square root of 1.49, or 1.22, or approximately a 1¼-inch nozzle.

To find the engine pressure we proceed as follows:

E.P. = N.P. × (1.1 + K L).

N.P. = 45 pounds.

K (for two parallel 2½-inch lines siamesed into 1¼-inch nozzle) = .066.

L, the number of 50 foot lengths in the line = 24.

Then engine pressure = $45 \times (1.1 + .066 \times 24)$.

$= 45 \times 2.684 = 120.78$, or 121 pounds.

Answer 2: A discharge sprinkler head at 25 pounds pressure = 31 g.p.m.

If 30 heads are opened the discharge will be 30×31 or 910 g.p.m.

The back pressure, due to the elevation of the sprinkler heads above the street, equals $12 \times .434$ or 5.208 pounds.

Friction loss in the sprinkler system can be taken at about 10 pounds.

The pressure at the head is 25 pounds.

Therefore is the pressure against which the pumper must work (exclusive of friction in hose) = 5 + 10 + 25, or 40 pounds.

The friction loss in 100 feet of 2½-inch hose is found with the following formula:

Friction (100 feet of 2½-inch hose) = $2 \times Q \times Q + Q$. Where Q is the flow measured in hundreds of gallons per minute. As the flow is 910 gallons per minute, Q equals 9.1.

Then friction loss per 100 feet = $2 \times 9.1 \times 9.1 + 9.1$ or 175 pounds.

The total pressure at the engine will be 40 + 175 or 215 pounds.

Hence the engine would have to give 910 gallons per minute at 215 pounds engine pressure. This would require two 1,000 gallon pumpers, capable each of giving 1,000 gallons per minute at 120 pounds pump pressure.

In the above it is assumed that the rating of pumps jumps from the 750-gallon to the 1,000-gallon as the next larger size.

Answer 3: Two chemicals commonly used for fumigation in flour mills are carbon disulphide and hydrocyanic acid gas.

Carbon disulphide is volatile and inflammable. It forms an explosive mixture with air. It is heavier than air and collects in pockets. It is not poisonous, however, to human beings.

Hydrocyanic acid gas has little or no fire hazard but is extremely dangerous to human life. This gas is deadly.

Answer 4: Keep sprinklers supplied with water. First engine to arrive usually connects to sprinklers.

In the case of exposed buildings, avoid fusing of heads if sprinklers are not needed by closing windows, shutters, and other means. Of course, if exposed building becomes involved, sprinklers should function. Protect exposed sprinkler tanks against damage by radiated heat.

If exposed building is in imminent danger of becoming ignited, have engine connected to sprinkler system at once.

Answer 5: Direct stream at burning material, and not at flame or smoke; in operating from the street, where a floor is involved, stream should be directed to strike the ceiling so that it will spray down over burning material. It should be shifted continually, to secure maximum coverage without excess and unnecessary use of water.

Take care that stream is so directed that it does not travel in one window and out another window at the rear. With water tower streams, the streams should be operated in any one window only long enough to darken the fire. They should be shifted from window to window as necessary.

Answer 6: Three oils found in industrial plants that are subject to spontaneous ignition are tung oil, linseed oil and soya bean oil.

Three which are not subject to spontaneouss ignition are olive oil, castor oil, and petroleum oil.

Answer 7: Three liquids are water, kerosene and alcohol. Water is found everywhere. It has, of course, no hazards.

Kerosene is found chiefly at gas stations and hardware stores. In smaller cities it may also be found in the general stores and grocery stores. It is a petroleum oil, readily inflammable but not highly volatile. Its chief hazard is its tendency to increase the intensity of a fire, due to the fact that it burns vigorously.

Alcohol may be found in chemical works, distilleries, wholesale drug houses, retail drug stores, and many other places. There are several different types of alcohol, the most commonly

known being grain alcohol, which is not poisonous to human consumption.

Alcohol burns readily and it is somewhat volatile, although explosions of alcohol vapor are not particularly common.

Three solids are camphor, lead and magnesium. Camphor is a white, translucent, crystalline and volatile material. It is inflammable, buring with a smoky flame. It is used in the manufacture of pyroxylin plastics and also for the extinction of vermin and moths and for medicinal purpose. It is found in establishments engaged in these lines. It is readily inflammable and once ignited burns vigorously.

Lead is a metal used in many arts and industries. It is about 11 times as heavy as water, melts when submitted to 621° F. There is no particular hazard in connection with lead in its pure state.

Magnesium is a metal which resembles zinc in several respects. Its color is silvery white. It is lighter than aluminum and in thin strips or sheets it burns readily with intense heat, producing light of great intensity. It slowly decomposes water at the boiling point.

It is used in powder and foil forms for producing flash lights for photography. It is also used in metal work where light alloys are needed.

With regard to hazards, magnesium dust is liable to dust explosion. When in thin strips as noted above, it presents a serious fire hazard.

Three gases are chlorine, hydrogen and oxygen. Chlorine is a heavy yellow gas, very pungent, and destructive and irritating to human tissue. It is used in the bleaching industries and in sterilization of water, and sewage. Many other chemical processes involve it. Its chief hazard is its danger to life.

Hydrogen is a gas much lighter than air. It burns with a pale blue flame of high temperature, about 2,000° C. It is used in the hardening of oils and fats, notably soap, edible and cooking fats. It is also used as a compressed gas for oxy-hydrogen cutting and welding in metal works.

With regard to hazards, it is a very flammable gas with a wide explosive range.

Oxygen is a gas used quite widely in industry, particularly in connection with welding and cutting torches. It is a very important ingredient in both air and water, being the life supporting element of air and with oxygen, making up water.

There is no life hazard, and its chief fire hazard is that it increases the heat intensity of burning materials. In fact, oxygen is necessary for free combustion of materials commonly encountered at fires.

Answer 8: First stop the motor which drives the machine. Use carbon dioxide, carbon tetrachloride, or foam extinguisher after the electric circuit has been opened. The chief hazards of such equipment is the quantity of heated oil present.

Answer 9: Cellophane has no more fire hazard than has ordinary paper.

The two most important services obtained from fire walls, are: 1. Preventing extension of fire; 2. Safety to life in the event of fire.

Precautions necessary to insure the protection of openings of fire walls are to have them equipped with self closing, automatic fire doors, and to see that these doors are kept in operable condition at all times. Anything which may block the doors in travel to "shut" position should be removed.

New Building Code for New York

A new building code has just been adopted to make New York City a safer place in which to live.

It is the city's first completely revised code of this kind in twenty-one years. It was passed after a delay of four years caused by obstruction of political and other interests, and becomes the law on January 1, 1938.

The Board of Aldermen enacted the bill and it became law when signed by Mayor LaGuardia. It is the result of painstaking effort and community cooperation. Outstanding engineers, architects and other specialists gave their services without stint to help draft the document, thus refuting the often heard statement that New Yorkers lack community interest.

Changing methods of construction and types of materials during recent years had caused much confusion under the heretofore existing code.

Fire prevention in all its phases is covered in the legislation. Fire-resistant roofing continues mandatory in new construction. The wooden shingle roof is barred entirely in new structures.

The ordinance insists that all materials in walls, flooring and foundations be subjected to the sternest fire tests before their use is permitted. Roofing on dwellings must be of fire-resistant material.

Governor Attends Vermont Meet

Governor Aiken and Lieut. Governor Wills of Vermont attended the forty-eighth annual convention of the Vermont State Firemen's Association held at St. Johnsbury, at which more than five hundred firemen were present.

Major L. S. Johnson, U. S. Department of Chemical Warfare, spoke on "Smoke Dangers, Carbon Monoxide, Carbon Dioxide, and Dangers from Various Gases."

The new officers are President, Albert Potter, Poultney; First Vice-President, M. S. Perry, North Bennington; Second Vice-President, John Olson, Rutland; Secretary-Treasurer, W. H. Adams, Vergennes.

There were a number of department contests, and a parade in the evening. The cup for the best appearing department was awarded to Springfield.

Boat Given Fire Department

The Rotary Club of Attleboro, Mass., presented a 14-foot steel non-sinkable boat to the Fire Department. It contains an inhalator and grappling irons. The boat is to be placed on a trailer and made available for emergency use.

Chief J. P. Welsh to Retire

Chief James P. Welsh, a member of the Eau Claire, Wis., Fire Department for more than forty-eight years, and Chief for over thirty years, retired on September 7 at the age of seventy-two.

Lawrence E. Smith, Assistant Chief, for many years, has been named Acting Chief.

Chief Welsh joined the service as pipeman, and on November 1, 1891, was appointed Superintendent of Fire Alarm. On May 4, 1899, he was made city electrician. He was advanced to Fire Warden on May 1, 1901, Assistant Chief on May 1, 1905, and Chief on November 2, 1906.

He could have retired, according to department regulations, when he was in the service for twenty-two years, and that was twenty-six years ago.

Chief Welsh, who is a golfing and also a bowling enthusiast, expects to devote some time to these sports.

Firemen Provide Tourist Information

The firemen's local at Long Beach, Cal., is sponsoring an information service for tourists, and this "Courtesy to Tourists" service is in charge of Capt. H. T. Morgan, department drill instructor. There are signs outside the stations which read, "Welcome Tourists, Information, Long Beach Fire Fighters Association." The men are directed by Chief Duree not to tell the visitors that they do not know, but to try to get the information desired.

Our inquiring reporter overhauls the firemanic news of the day.

Using the Old Bean

When Edward Correia, aged 20, of Tiverton (R. I.) was pinned beneath a tumbling pile of logs in basement of Best Lumber Company, he used his thinker. Reaching painfully into his pocket he got a match, lighted it, held its flame to a head in fire alarm sprinkler system just within reach. Firemen who responded rescued him.

Near Zero Fire on Hot Day

Scout 9 sends this 'un: Seems that firemen under Chief Michael Fleming, Albany (N. Y.) dragged their hose through near-zero temperature to fight a $15,000 fire in the Central Warehouse. Fire originated on roof due, probably to boiling tar left by repair men, and to get at it smoke-eaters had to drag lines through a cold storage plant where temperatures were near zero.

One Squirt—Curtain!

Mrs. Margaret Galaida, aged 37, Woodbridge (N. J.) awoke to find a burglar in her bedroom. Looking up she saw masked man with "gat" in hand who said "keep quiet and pull up the covers and nothing will happen to you." Instead, she grabbed a fire extinguisher next to her bed and turned it on the intruder who fired a wild shot at her, stumbled out the window onto a porch roof, slid down pillar and escaped. Thanks, "Newshawk," for a selling idea for the extinguisher folks!

Odoriferous Warning

Our demon statistician reports that as a fire warning, sharp and unmistakable, some mines release butyl mercaptan, a synthetic chemical that is an exact imitation of the secretion ejected by a skunk. Mines buy it from Eastman Kodak Company. Like the packers that use every part of the hog but the squeal, Eastman uses no part of the skunk but the stench.

He Won—But Lost

Michael Doherty, Buffalo (N. Y.) beat the engines to a blaze, but when haled before Judge Robert J. Summers, the judge allowed as how it was all right to chase the engines but t'weren't fair to get in front of 'em and beat 'em to it. So he fined Mike $10 on charge of "interfering with a fire engine."

Narrowest Escape

James Osman, aged 38, window cleaner, was washing windows on 16th floor of Brooklyn (N. Y.) building when one side of his safety-belt broke, leaving him dangling above sudden death. Crowds collected, women fainted. Someone turned in fire alarm. Police called emergency trucks. Finally employees of adjacent office saw Osman's plight, lowered window pole to him, over which he climbed hand-over-hand until rescuers yanked him into window. Osman took time off to rest up a bit.

News Flashes

Strike of 180 operators, electricians and roundsmen of American District Telegraph Co., N. Y. C., alarmed 4,500 hospitals, hotels, and other buildings protected by its watchman's service, but protection was maintained by non-striking employees. . . . All new merchant ships built with government subsidies will be fireproof and foolproof, as far as modern safety standards can make 'em, says Chairman J. P. Kennedy, of Maritime Commission. . . . Menacing his Chief and shooting another fireman, Captain Gustave Birmele, 47, of Eng. 20, Jersey City (N. J.) F. D. went haywire, ran amuck in firehouse, following his suspension on charges of intoxication. Birmele, winner of D. S. C. for bravery in World War, faced charges of attempt to kill, atrocious assault and battery, carrying dangerous weapon, etc. . . . When barn on Wilson Farm, near Imperial (Pa.), burned, 40 dogs burned to death. . . . Radio Station WNYF, operating on 1,630 kilocycles, will connect ships in harbor, fireboats of N. Y. F. D. and fire headquarters in two-way radio communication system, inaugurated by Commissioner and Chief John J. McElligott. . . . State of Maine halted all inland fishing September 1, due to fire hazard. . . . So many sex crimes in Chicago they plan to install alarms on fire escapes to give notice of prowlers. . . . 105-year old Cold Brook Hotel, Cold Brook (N. Y.), destroyed by fire which threatened entire village. . . . Barred from escape by iron grillwork on windows of private sanitarium, 21 patients were killed, when building burned down in Hiroshima, Japan. . . . When gasoline storage tanks exploded, in Turkey, 24 workers were burned to death, 10 seriously injured. . . . Sixty inmates of insane asylum, Strasbourg, France, overpowered guards, set buildings afire. . . . Public library of Marysville (Cal.) permits smoking. . . . Forest fire in Wyoming resulted in death of 14 fire fighters, hurt 40 others, reported cause—lightning. Men were cut off from avenues of escape. A mongrel dog helped saved 25, who were also trapped. . . . Oldest fire patrol in U. S. A., No. 1 N. Y. F. P., was dissolved; established 100 years ago; not enough business, reported the reason.

Cop Burns Visiting Firemen

Motorcycle Patrolman Frank Bergenstein, Lockport (N. Y.) P. D., doesn't believe in the "brothers-in-arms" stuff. He gave the Lewiston Village F. D. a summons on reckless driving charge. The neighbor smokeeaters retaliated with plea they were speeding to a blaze. "Visiting firemen haven't any right to speed through the street just because they're firemen," sez Bergenstein. "It's all right for the Lockport City F. D., but not for outsiders."

Fatal Haste

The haste of Louis Boyatzis, 38, New York City, in running to turn in a fire alarm when he noticed smoke coming from the top floor of an apartment proved the cause of his death a few minutes later. He was killed by an automobile when he dashed in front of it. Fire destroyed most of furnishings on top floor before F. D. arrived.

They Will Do It!

Harold Van Antwerp, 37 years old, foreman of the Ever Ready Volunteer Fire Company of Clyde (N. Y.), went to jail as result of investigation of two fires behind a ten family tenement in July. State troopers made arrest.

Obliging Citizen

Our Buckeye Scout tells us about Albert White, of Bellevue (O.), who, when he returned to his parked automobile and found a seat cushion ablaze calmly carried it to the fire station in the City Hall, where firemen extinguished the flames. No wonder this business of fire fighting is getting soft!

Carelessness Causes Death!

Leroy Perdue, 22, New Albany (Ind.), was burned to death when his car was overturned in a collision. While police were attempting to extricate him, careless bystander lit a cigarette, tossed match to street and gasoline, leaking from the damaged tank ignited, forcing rescuers to flee, leaving Perdue to his fate.

Bruin Couldn't Bear Fire!

At Watertown (N. Y.), sez Scout No. 11, a passerby carelessly tossed a cigarette toward the bear cage in the City Park Zoo. It landed on bruin, pet bear of animal collection. Bruin's fur began to smoke. Bruin couldn't bear it—roared his pain and wrath until nearby policeman tossed pails of water over him. The fire out and his feeling's badly bruised, bruin finally curled up and went to sleep.

Note to contributors: If you do not read your news contribution in the next issue of FIRE ENGINEERING don't despair—if it's suitable it will ultimately find its way into print.

Editor, Watch Desk.

WHAT DO YOU KNOW?

The Editor of "The Watch Desk" welcomes contributions from readers of FIRE ENGINEERING that briefly give facts about interesting, odd things that have to do with fires, fire fighting, etc. Address "Editor, Watch Desk."

Up Goes the Hay

Heat, in newly stored hay, is believed responsible for a fire which destroyed the hay and stock barn on the Green Farm, Slocum, North Kingstown, R. I.

Firemen from North and South Kingstown responded, but could do nothing, as the water supply was about one-half mile away across from a railroad right of way. Fifteen heifers that were being groomed for the coming state fair, were led to safety. Fire consumed fifty tons of hay that were left from last year and 100 tons stored this summer, part the day before the fire.

Although firemen were unable to save the barn, they prevented the spread of the fire to other buildings. The loss was placed at $30,000.

Driving Out the Cows to Safety, Away from the Burning Barn

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of August, 1937. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending August 31	Loss in Thousands of Dollars
Xenia, Ohio—Bldg. housing Friedman general store	$ 80
Greenville, Que.—Property of George Dansereau et Fils Co.	50
Atlanta, Ga.—Cliff House at Tallulah Falls, owned by Moss estate	50
Wichita Falls, Tex.—Several business establishments damaged	200
Bellmore, N. Y.—Main building of Perfectoloid Co., damaged	50
Fall River, Mass.—Old Linden Street school destroyed	50
Petersburg, Va.—William B. Beach tobacco factory damaged	50
Mooresville, Ind.—Brooklyn Brick Co., Inc., 7 mi. south, destroyed	80
Holyoke, Mass.—La France Block on Maple street damaged	50
Pawtucket, R. I.—Building housing Lyon Harootunian Coal & Wood Co.	60
Georgetown, Mass.—Ice house occupied by Elliott Bros.	50
Mattoon, Ill.—Theatre and business building destroyed	80
Allentown, Pa.—Mauser Milling Co. mill, at Laurys, 1 mile out	250
Louisville, Ky.—Plant of Louisville Veneer Mills damaged	50
Geneva, N. Y.—Patent Cereal Co. plant damaged	50
Philadelphia, Pa.—Walnut Street pier of Pennsylvania R. R. destroyed	275
Everett, Mass.—Everett Fuel Co. plant damaged	125
Windsor Locks, Conn.—Two barns of Otee Tobacco Corp., destroyed	50
Angels Camp, Cal.—Plant of Angels Camp Box & Lumber Co., destroyed	80
Petoskey, Mich.—Business and apartment property, Ellis block	50
Asbury Park, N. J.—New Monmouth Hotel destroyed	65
Alpena, Mich.—Long Lake Lodge, owned by J. T. Randall	50
Ryde, Cal.—Business and residential property	50
Indianapolis, Ind.—Warehouse of Beveridge Paper Co., destroyed	50
Norfolk, Va.—Pier No. 2 of Norfolk & Western R. R. at Lambert's Point	170
Nahma, Mich.—Property of Bay de Noquet Lumber Co.	65
Glendale, Ore.—Mill of Ingham Lumber Co., damaged	170
Topeka, Man.—First Christian Church destroyed	65
Minneapolis, Minn—Plant of General Metalware Co., damaged	50
Tampa, Fla.—Warehouse of Cash Grocery Co., destroyed	60
Center Bridge, Pa.—Property of National Transit Co.	50
Sacramento, Cal.—Front Street Plant of Pacific Trading Co.	50
Alton, Ill.—Shop of Duncan Foundry & Machine Works	125
Springfield, Ill.—Yard of Schuck & Sons Lumber Co., damaged	200
Toronto, Ont.—Wallboards, Ltd., and Acme Paper Box Co.	50
Atchison, Kan.—Mill and elevators of Lukens Milling Co.	170
Boston, Mass.—Combination Silver Dollar Bar and Hotel Brigham	50
Sacramento, Cal.—Plant of Pacific Trading Co.	50
Haskersfield, Cal.—Plant of Hayward Lumber Co., destroyed	65
Little Rock, Ark.—Cooperage plant of J. H. Hamlin & Son	170
Ocean Springs, Miss.—Dwelling of H. M. Russell on Beach St.	50
Nevada, Mo.—Neale Hall of Cottey College destroyed	50

Idaho Firemen Honor Mathews

Chief George Mathews, Pocatello, was elected President of the Idaho State Firemen's Association at the annual convention held at Lewiston, on August 9 and 10. Twenty-five departments were represented.

The guest speakers included Jay Stevens, Fire Marshal, California; Capt. William A. Groce, ex-Fire Marshal, Washington, and now special agent at Spokane, for the National Board of Fire Underwriters; Chief William P. Payne, Spokane; Capt. Henry Kuehl, Drillmaster, Spokane; R. C. Stevenson, Assistant Manager, Idaho Surveying and Rating Bureau, Boise, and Battalion Chief Robert B. Rogers, Seattle.

The convention closed with a dinner in the Lewis-Clark Hotel. Early the next morning, all the delegates joined in

Nearby Buildings Endangered by Industrial Plant Fire

A fire which developed in a building at Passaic, N. J., formerly used by a printing company and now used by a group of manufacturers, endangered several nearby buildings. Fire spread so quickly that a general alarm was turned in, and aid was rushed from Garfield and Clifton, two nearby communities. Two firemen were injured while fighting the fire.

a caravan to Spokane one hundred miles distant, to meet with the Pacific Coast Fire Chiefs.

The other officers elected are Harry Baker, First Vice-President, Asst. Chief, Lewiston; Second Vice-President, Chief C. I. Goff, Preston; Secretary-Treasurer, Chief George Westcott, Kellogg; Chief William A. Foster, Boise, State Vice-President to the Pacific Coast Board.

The next convention will be held at Preston, just prior to the meeting of the Pacific Coast Fire Chiefs' Association meeting at Salt Lake City, Utah.

Slade Chief of Des Moines

Charles L. Slade, a member of the Des Moines, Ia., Fire Department since August 1, 1919, has been named head of the department.

He served in the Mechanical Department for several years and then was

Chief Charles L. Slade

promoted to the rank of Lieutenant. After he had served with Aerial Truck No. 1 for two years he was transferred to Squad No. 1. Here he remained until he was promoted to Captain on May 27, 1937.

Southern California Chiefs Meet

A number of interesting talks were given at the meeting of the Southern California Fire Chiefs' Club held at Alhambra several months ago. There were about 110 persons present.

Laron Cowley, Superintendent of Fire Alarms, Alhambra, spoke on two-way radio transmittal and explained the use of ultra high frequencies.

A talk on "Public Relations," was given by Chief William M. Richard, Glendale. He illustrated his talk with slides, and showed that public opinion is almost infinite in power.

A committee reported that even though first aid work was being done by members of Fire Departments, the cost of such work should not be charged to the departments.

Harry Strasser, Secretary-Treasurer, California State Firemen's Association, outlined the work which had been done by the state legislature. He urged the firemen to watch the legislature to see that no bills detrimental to the service, would be introduced.

The membership of the club has recently increased from seventy to 113.

Kentucky Firemen Meet

Chief John Schroder, S. Ft. Mitchell, was elected President of the Kentucky Firemen's Association at the convention held at Corbin.

It was reported that much progress had been made on a bill to be introduced in the next legislature that would provide civil service for all towns or cities of the third to fifth classes, and for legislation that would provide a Fire Department instructor for the state. This last measure is partially sponsored by the Federal Bureau of Vocational Training.

Chief Paris Salmons, the convention host, was stricken with appendicitis six weeks before the convention, and had to complete the convention plans while in bed. He was in a wheel chair at the convention.

The other officers are Russell Dyche, London, Vice-President; K. B. Phillips, Harrodsburg, Treasurer; V. A. Beam, Louisville, Secretary.

Fireproofing Fluid Tested

Two buildings constructed in Detroit, were set afire to prove the merits of a new fireproofing compound, to be marketed by the United States Flameproofing Corporation.

In each of the structures was placed an amount of excelsior. One of the buildings was fireproofed with the compound—the fabric curtains, furniture, etc. Both were set afire at the same time. At the end of three and one-half minutes, the untreated structure, was a mass of flames. In the other, the mass of excelsior had burned itself out, and the building was intact. The flames licked a mail bag treated with the compound, and letters inside the bag were unharmed.

Chief Israel, Detroit, who witnessed the test, said:

Extinguishing the Oil Fire with Vapor Nozzles

"If this product had been used to finish materials and draperies in the Study Club, several years ago, twenty-two lives would have been saved."

The flameproofing ingredient mixes with any type of paint or thinner. Both buildings were erected four weeks before the test. One was painted with ordinary paint, and the other with the flameproof paint binder.

Michigan Chiefs Meet at Saginaw

Chiefs from various parts of Michigan gathered at the Bancroft Hotel, Saginaw, to attend a three-day meeting of the Michigan State Fire Chiefs' Association.

Mayor McDonald attended a luncheon at which he welcomed the visitors.

Among the talks given were "Industrial Application of Liquified Petroleum Products," by E. L. Brennan and "Training Firemen" by J. W. Parry.

During the convention there was a demonstration of a vapor nozzle. An oil fire was started in a pit with an area of 8,000 square feet, and extinguished with water, using the fog or vapor nozzle. The fire was so hot, that close approach was difficult. The fire was extinguished in twenty-seven seconds.

Richard E. Vernor, Manager, Fire Prevention Department, gave a talk at the banquet on community fire prevention methods. He said, "While a Fire Department's principal job is extinguishing fires, I am thoroughly convinced it also should stop fires before they start."

Chief Bender, the convention host, was presented with a gold badge as Past-President by members of the association.

The new officers are Chief Floyd C. Baker, Highland Park, President; C. Edward Willert, Mt. Clemens, First Vice-President; Frank W. Kuhm, Pontiac, Second Vice-President; George Boughner, Grand Rapids, Treasurer; George F. Dansbury, Grosse Point Farms, re-elected Secretary; J. Frank Van Atta, Kalamazoo, Trustee. Donald D. Post, Ferndale, delegate to the I. A. F. C. convention at Oklahoma City. Muskegon was selected as the next convention city.

WE NEED 100 INDIANS QUICK!

"Got a big grass fire up here and it's getting worse. How quick can you ship 100 No. 90G INDIAN FIRE PUMPS?"

"Have them off to you in an hour. 100 No. 90G by express."

"Right. That's great service. Rush them on—we sure need them!"

That's the way a lot of our orders come in. Rush—emergency calls. And our customers are never disappointed in delivery. When INDIAN FIRE PUMPS are needed the demand is frequently urgent. A difference of a few hours in shipment may mean huge fire loss. While we guarantee PROMPT SHIPMENT we recommend having sufficient INDIANS on hand BEFORE THE EMERGENCY.

PHOTO above shows six men with INDIAN FIRE PUMPS running with fire apparatus to fight immense grass and forest fire on Long Island. While trucks can go only where roads are passable INDIANS (the one man fire departments) go everywhere, smothering fire in every nook and cranny.

CARRIES HIGH ON BACK

Please note how men are enabled to run without the tanks jostling up and down on hips. The 5 gallon curved, metal tanks carry high on the shoulders like the army pack. The outfit may be carried without discomfort or chafing. Nothing to bounce against the rump when walking or running.

COMBINATION BRASS NOZZLE FOR 50-FOOT STREAM OR A LONG COARSE SPRAY. NOZZLES CHAINED TO PUMP AND CANNOT BECOME LOST
HEAVY BRASS, QUICK OPENING WATER TIGHT FILLER CAP WITH REMOVABLE BRASS STRAINER. CAP HAS INSIDE CHAIN TO PREVENT LOSING.
COMBINATION BRASS HANDLE FOR CARRYING TANK AND FOR HOLDING PUMP
EXTRA HEAVY TANK HAS SOLID BRASS BOTTOM. ALL JOINTS LOCKED AND SOLDERED. BUILT STRONG.
INDIAN

PATENTED

FORM-FITTING, VENTILATED TANK GIVES A CONSTANT CIRCULATION OF AIR BETWEEN TANK AND CARRIER'S BACK. IT PROTECTS THE BACK FROM THE COLD WATER AND MOISTURE IN THE TANK AND KEEPS THE BACK WARM AND DRY. THE FORM-FITTING SHAPE OF THIS TANK FITS THE BACK PERFECTLY. SNUG AND FIRM AND FEELS GOOD.

QUICK AND EASY REFILLING

Heavy brass, quick lock large opening permits hasty refilling of the tank on the fire line. Removable brass strainer PREVENTS LEAVES, DIRT AND REFUSE ENTERING the tank to clog and give trouble.

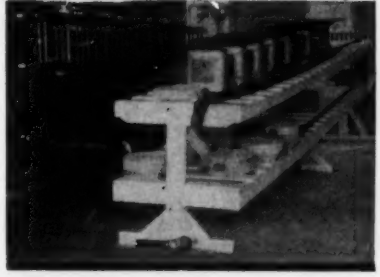
VENTILATED TANK

Form fitting ventilated tank allows continuous circulation of air between carrier's back and water tank. This prevents dampness, moisture and cold reaching carrier's back which remains dry and comfortable no matter how long the INDIAN is carried. Clear water continually kept in the tank makes the INDIAN ready for use at all times. Tank will not rot or mildew.

Send for Catalog and Prices

(at left)
"Mopping up" with INDIANS — getting into smoldering tree trunks and bush. 50 ft. strong stream completely extinguishes the blaze.

(at right)
Several INDIANS in rack at Long Lake, N. Y., fire house. INDIAN FIRE PUMPS are widely used by rural and city fire departments.



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SALVAGE COVERS

100% Protection with Shuredry Salvage Covers

Read what Chief Powell says:

. . .. At a recent house fire of 14 rooms where the entire roof was burned off, with a $1,500.00 loss to house, our Shuredry Salvage Covers gave 100% protection to the bedrooms directly under the fire besides to all other furniture in the home. Not one cent was paid for water damage to contents.

No fire department is complete without a good supply of salvage covers, and firemen trained how to use them properly. We can always depend on our Shuredry salvage covers and are only too glad to recommend them.

Yours very truly,
R. A. POWELL, Chief
Pierre Fire Dept.
Pierre, South Dakota

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Manufacturers Since 1870
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MINNEAPOLIS BROOKLYN NEW ORLEANS KANSAS CITY, KAN.

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GLOBE
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SUITS

Warm, roomy, good-looking and durable. Coats have a wide chest protector flap which keeps water out and warmth in. They are lined with either wool or light weight fabric and interlined with waterproof material. Pockets have patent stays to prevent sagging or tearing. Sleeves have warm wristers. Suits come in Black, Brown or White at same prices.

COATS $10.00
No. 240
40", $10.50 42", $11.00
50", $11.50 52", $12.00

PANTS $7.50
No. 270
To match coat. Waterproof, warm with lock snap, quick hitch.

GLOBE MFG. CO.
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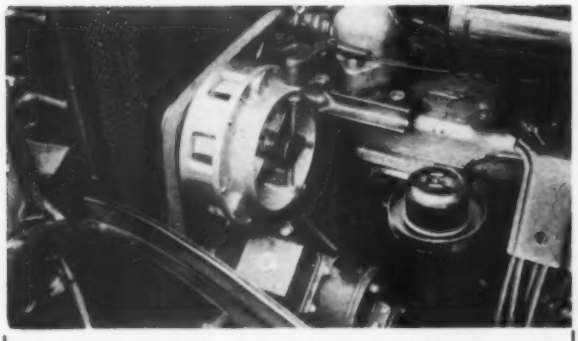

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DOESN'T USE BATTERY
Drives Off Fan Shaft

NOT AFFECTED by WEATHER

GREATEST SOUND at HIGH SPEED

New York City Police Dept. has bought 541 since 1935.

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FIRE HOSE

The hose with an unsurpassed reputation for QUALITY and SERVICE that has made it the STANDARD OF THE WEST for over 25 years.

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Loudest, clearest toned bell on the market as a result of years of experience in the manufacture of quality bells for the fire service.

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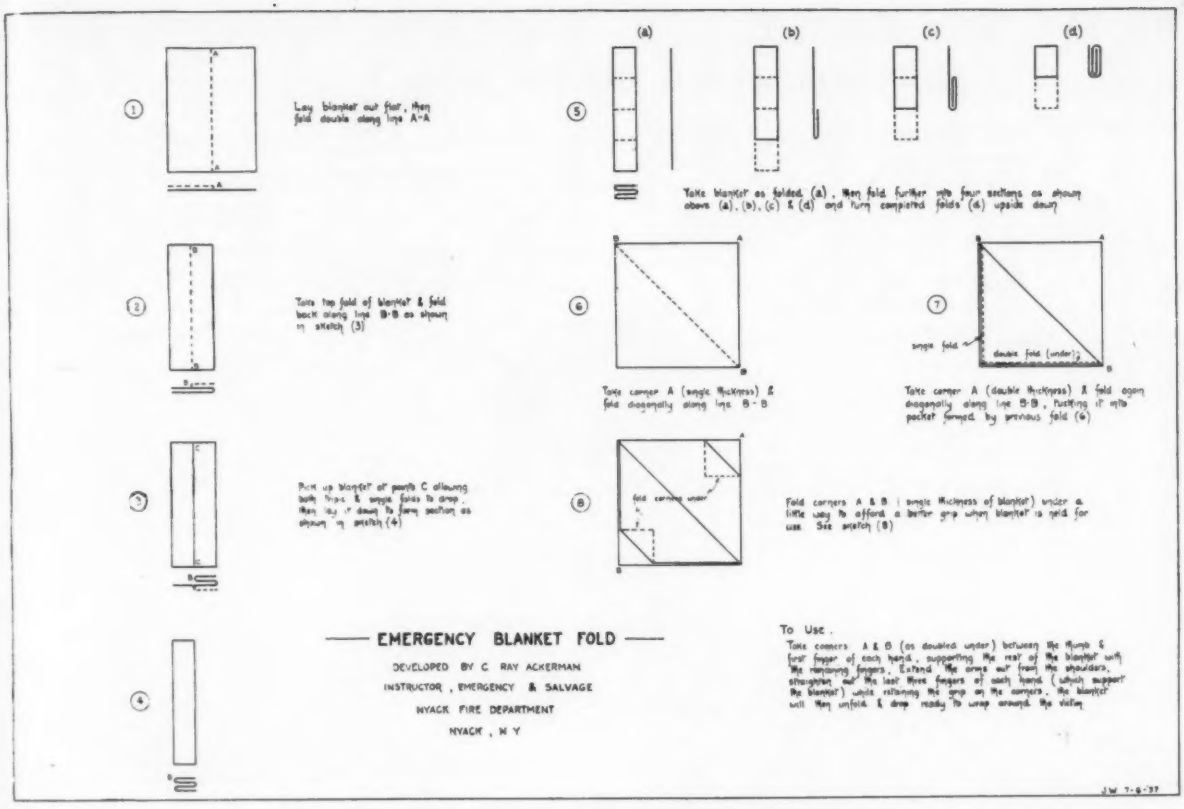
STANDARD OF THE FIRE SERVICE FOR GENERATIONS


Lay blanket out flat, then fold double along line A-A
Take top fold of blanket & fold back along line B-B as shown in sketch (3)
Pick up blanket at points C allowing both tops & single folds to drop, then lay it down to form section as shown in sketch (4)
Take blanket as folded, (a), then fold further into four sections as shown above (a), (b), (c) & (d) and turn completed folds (d) upside down
Take corner A (single thickness) & fold diagonally along line B-B
single fold
double fold (under)
Take corner A (double thickness) & fold again diagonally along line B-B, tucking it into pocket formed by previous fold (6)
fold corners under
Fold corners A & B (single thickness of blanket) under a little way to afford a better grip when blanket is held for use. See sketch (8)
EMERGENCY BLANKET FOLD
DEVELOPED BY C. RAY ACKERMAN
INSTRUCTOR, EMERGENCY & SALVAGE
NYACK FIRE DEPARTMENT
NYACK, N.Y.
To Use.
JW 7-6-37

Blanket Fold Developed by C. Ray Ackerman of Nyack Fire Department

Emergency Blanket Fold

C. Ray Ackerman, an instructor in emergency and salvage work in the Nyack, N. Y., Fire Department, has developed an emergency blanket fold which he has turned over to the American Red Cross without any thought of compensation. This fold was described in FIRE ENGINEERING, but was not illustrated.

Herewith, is shown pictorially, just how the fold is made. If the fold is made and used as directed, the blanket can be unfolded at once and little time will be lost in getting it around some accident victim.

Illinois Passes Wage Bill

A minimum wage bill for firemen has been made a law in Illinois without the Governor's signature.

By the terms of the new law, there will be a minimum salary of $150 a month for firemen in cities, villages or incorporated towns of between 10,000 and 25,000 population, and $175 a month in cities of from 25,000 to 150,000 population.

A number of Illinois Mayors protested such a step, and the veto of a companion measure that provided for an increased corporate tax without giving the citizens an opportunity to vote on the subject.

Governor Horner said, "While generally I do not subscribe to the policy of the legislature establishing minimum wages for municipal employees, I am convinced by the statement of some Mayors, that a number of citiese have failed to compensate fairly those in such perilous life-saving vocations as the Police and Fire Departments.

Pacific Coast Chiefs Meet

Chief W. S. Knight, Salt Lake City, Utah, was chosen President of the Pacific Coast Association of Fire Chiefs,

Chief W. S. Knight

at the forty-fourth annual convention, held at Spokane, Wash., on August 11 to 14.

The other officers are Ralph Williams, Fresno, First Vice-President; Art J. Baker, Lewistown, Mont., Second Vice-President; Ed Steinhauer, Redding, Cal., Treasurer, and Jay W. Stevens, State Fire Marshal of California, San Francisco, Secretary.

The Secretary reported that the association made its largest membership gain last year. The membership total is now 656, of which 150 were added sixty days previous to the report.

E. Murray Banford, of the National Board of Fire Underwriters, in speaking on "Arson Investigations," said that juries have been very lenient in many cases, even though guilt had been proven.

A series of demonstrations were arranged by the U. S. Bureau of Mines, the Underwriters' Field Laboratory, the Seattle Fire Department, the Menlo Park Fire Department and the Spokane Fire Department.

A crowd of 50,000 persons witnessed the evening exhibition drills by a ladder team of the Spokane Fire Department, a hose team from Seattle, and pompier and rope work of the volunteer departments of Auburn and Puyallup.

A tour was made to the Grand Coulee Dam, after which the visitors returned to Spokane for a "farewell night."

The next convention will be held at Salt Lake City.

Fireboat Bids Opened

New York City opened bids on August 19 for the construction of a new fireboat. The bid submitted by the Union Shipyards, Inc., was $924,000. and the Robbins Drydock Company, $999,-641.

THE PART DUST PLAYS IN INDUSTRIAL PLANT FIRE HAZARDS

Methods to Avoid a Repetition of the Immense Losses in the Past Through Dust Explosions Are Pointed Out by Dr. Price in This Article

By Dr. David J. Price

Principal Engineer in Charge, Chemical Research Division, U. S. Department of Agriculture

THE Federal Government has conducted extensive research studies to determine the causes of dust explosions and to develop methods for their prevention and control.

The Bureau of Mines, U. S. Department of the Interior, has definitely established the fact that explosions can occur in bituminous coal mines without the presence of explosive mine gases and that the ignition of the coal dust itself has been responsible for many disastrous mine explosions. As a direct result of effective research work by that Bureau, methods have been developed for the use of inert dusts, such as shale, limestone, and gypsum, for the control and prevention of coal dust explosions. Reports issued by the Safety Section of the Bureau of Mines indicate that these methods have proved very satisfactory.

The studies of the Bureau of Chemistry and Soils, U. S. Department of Agriculture, show that under favorable conditions a dust explosion can occur in any industrial plant or manufacturing establishment where combustible dust is created during manufacturing operations. When these research studies were undertaken it was generally supposed that it would be necessary to grind or crush grain and produce the powdery starchy materials from the inside of the grain before an explosive dust would be encountered. A large number of explosions in grain elevators, where no grinding or manufacturing operations were engaged in, showed definitely that the dust produced in the handling, elevating, conveying, and storing of grain also was explosive.

A survey has shown that the dust explosion hazard exists in a wide range of industries, such as flour and feed mills, grain elevators (both terminal and rural), starch factories, sugar refineries, woodworking plants, powdered milk plants, soap powder factories, sulphur crushing and pulverizing, hard rubber recovery plants, cork pulverizing plants, chocolate and cocoa plants, paper mills, insecticide plants, celluloid and textile plants, aluminum, zinc and magnesium plants, fertilizer plants, and rosin-handling plants.

We find, therefore, that approximately 28,000 industrial plants in the United States are subject to the dust explosion hazard. These plants normally employ 1,325,000 persons and manufacture product having an annual value of more than ten billions of dollars.

Extent of Dust Explosion Losses

In the last 20 years there have been approximately 400 dust explosions in industrial plants in the United States in connection with the handling, milling, and processing of products largely of agricultural origin. In these explosions 320 persons lost their lives and 750 were injured. The property and stock losses (insurance paid) amounted to more than $35,000,000.

Dr. David J. Price

Dust Collection and Removal

Cleanliness and good housekeeping are of prime importance in dust explosion prevention. It is impossible to handle or clean grain without making dust, but the dust should be collected and removed without being permitted to accumulate in any section of the plant. *A dust explosion cannot occur unless combustible dust is present.*

Removal of Foreign Material from Grain

Foreign material in the grain has been responsible for several recent explosions in grain elevators. Investigation of these explosions indicated that the dust clouds had been ignited by sparks from metal particles in the grain. Methods should be developed, therefore, for the removal of any metal or other foreign material that may drop into the grain while it is being handled. It is difficult in many instances to prevent foreign material from entering equipment in grain-handling operations, but screens of 1½ to 2-inch mesh placed in the gratings over receiving pits have in many instances stopped large pieces of metal from entering pits with the grain. The use of such screens and the practical value of magnetic separators in the grain-handling sections of the plant should be given further attention.

Inert Gas Protection in Grinding and Pulverizing Operations

The reduction of the oxygen content of the air in the enclosed system by the introduction of inert gas, such as carbon dioxide (CO_2), in grinding and pulverizing operations has proved effective in the control and prevention of dust explosions. When the oxygen content is reduced to approximately 12 per cent in grain-grinding operations, complete protection is afforded. The reduced oxygen content (as the result of the addition of inert gas) prevents the ignition of the dust cloud in the grinding machine, and also prevents the spread of fire through the conveying and elevating machinery.

Protection of Electrical Appliances and Equipment

A study of the causes of dust explosions has shown the danger of inadequately protected electrical appliances and equipment. Electric lamps should be protected with outer dust-proof globes and heavy wire guards to prevent breakage. Portable spotlights of suitable design and construction to be directed into bins through manholes should be used as temporary or occasional lights for bin examination instead of extension cords dropped into bins.

Control of Static Electricity

Static electricity must be recognized as one of the prominent causes of dust explosions, and considerable attention has been given to the development of control methods for this hazard. Provision should be made for the removal of static charges on all types of mechanical equipment handling combustible dusts or operating at points in the plant where these dusts are present.

We have heard a great deal recently about the extensive damage caused by the dust storms in various sections of the country. While investigating a dust explosion in a grain elevator in the Panhandle section of Texas, an adjuster for one of the insurance agencies concluded that the explosion was caused by static electricity. In describing local conditions in that territory he told of the following interesting occurrence, which had been reported to him by one of the local Fire Chiefs.

"The farmers have been stacking their sorghum grain in bundles on the farms, due to the grain never having matured, and these piles are covered with wires with weights on the end, and many of these piles have caught on fire when a swirl of wind and dust passed over them. The chief is having all the farmers ground these wires. The static has been so bad that in numerous instances it has destroyed the ground on automobiles, and the only way they could be operated was by attaching a chain to the frame and dragging it on the ground in order to make a ground for the car."

The condition thus described was confirmed in personal conferences with Fire Chiefs in attendance at the Texas Firemen's Training School, College Station, Texas, in July, 1936.

Value of Closed Storage Bins

The value of closed bins and the undesirability of interconnections between storage bins are indicated by the recent explosions in grain-handling plants. Open storage bins and bins with direct connections permit the rapid spread of flame over the tops of the bins and thereby extend the violence of the explosion. Preventing the spread of fire from one storage bin to another is of prime importance.

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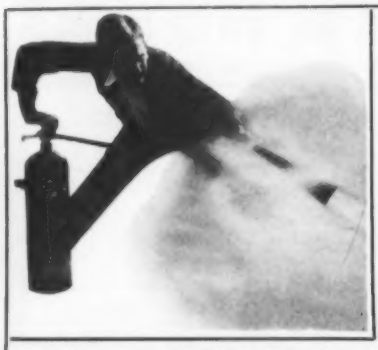

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The Chemical Engineering Division of the Bureau of Chemistry and Soils has shown that it is possible to vent grain dust explosions without structural damage, and the effectiveness of glass vents in actual explosions has confirmed the tests of the Bureau. In one case the workhouse in a large terminal grain elevator was saved from destruction by an adequate glass venting area. In another case proper venting area to relieve the pressure from an explosion in the workhouse of the elevator would have prevented the complete destruction of the top of the house. Provision for venting dust explosions should be made in the construction of all new grain-handling plants. It is recommended that for satisfactory venting of dust explosions in grain elevators not less than 1.25 square feet of venting area be provided for each 100 cubic feet of space (1 sq. ft. to 80 cu. ft.).

Dust Explosion Hazards During Fire-Fighting Operations

Although most of these dust explosions occur during the operation of industrial plants, it may be of interest to refer to the disastrous explosions resulting in the death of firemen during fire-fighting operations. These dust explosions that occur during fire fighting can be classified as follows:

1. Explosions caused by the full stream of water (high pressure) striking settled or static dust in various parts of the buildings. The water forces the dust cloud on to the flames and an explosion results. The best procedure in this case is to use a vapor spray nozzle instead of the full heavy pressure stream. This will not disturb the dust and cause a dust explosion.

2. Explosions that occur when firemen attempt to remove dust or powdered products from storage bins or other enclosures. When in the form of a cloud, these materials readily ignite upon coming in contact with flames.

The best procedure is to flood the bin by running the hose lines into the top of the bin. No attempt should be made to remove the material until the bin has been completely flooded and the water comes out of the bottom of the bin.

3. Explosions caused by the falling of the floors or dropping of the storage bins. When combustible materials are stored in bins there is always the possibility that a dust explosion may occur when the bottoms of the bins drop or the floors fall, forcing the dust cloud on to the fire.

The periodical inspection of industrial plants where combustible dusts are created is recommended so that firemen will be familiar with the construction of the plant and the operations engaged in when called upon to fight fires.

4. Explosions that result from the chemical reaction between water and dust. When water comes in contact with burning aluminum powder, for instance, hydrogen gas is liberated and explosions may follow.

When dusts of this kind are encountered, great caution should be exercised in the use of water. Factories manufacturing metallic powders and establishments that use large quantities of these materials should have generous quantities of dry sand in suitable containers for fire-fighting purposes.

Explosions in connection with fire-fighting operations have definitely indicated the value of periodical inspection of industrial plants. Developments following an explosion in a large soybean processing plant in the Middle West in October, 1935, emphasized the importance of firemen having a thorough knowledge of operating processes in industrial plants. This particular explosion resulted in the death of 11 men, injuries to 45 others, and property loss of approximately $600,000. The investigation of the explosion by the Department of Agriculture showed that the explosion was due to the ignition of dust at the soybean flaking rolls, resulting in the further ignition of an accumulation of hexane gas in another section of the plant. This hexane gas was used as a solvent for extraction of the oil from the soybeans.

This explosion was followed by another on October 22, 1935, in a rural community soybean oil extraction unit in Illinois, in which the operator and his assistant were killed and two others injured. In this explosion the accumulation of hexane gas used as the solvent was ignited by the fire in a nearby boiler.

Water as a Cause of Fires in Agricultural Products

A large proportion of our losses from fires on farms and in rural communities is due to the spontaneous heating and ignition of hay and other agricultural products. The combined farm and rural community fire loss is about $200,000,000 annually—more than 60 per cent of the total national fire loss. An annual loss of almost $100,000,000 a year from fires on farms means a "farm fire tax" of $15 on every farm in the United States. There are approximately 3,500 lives lost every year as the result of fires on farms.

It is interesting to observe the part played by water as the cause of fires of farm products. Large losses result from the spontaneous heating and ignition of hay, cattle feeds, fertilizers and other farm products due to excessive moisture or too much water in the materials when stored in barns, farm buildings, or storage places.

Moisture in Cattle Feed Causes Fire

Reports are on record of fires in railroad cars during the shipment of cattle feed. The feed when shipped had a high moisture content or became wet by water leaking into the car, and in some cases was placed in the car in an unusually hot condition. These fires were caused by the excessive moisture content of the feed—in other words, by water.

Similar types of fires are reported from the storage and shipment of fertilizer materials, particularly when the material has become wet resulting in an unusually high moisture content.

Fires have been reported when sawdust has become wet and in one instance an ice house containing several tons of ice was destroyed when a fire originated in this manner.

The Department of Agriculture is studying these peculiar fires in farm products caused by excessive moisture. It is hoped that essential scientific data can be obtained in these experiments that will result in the development of methods for the control and prevention of the spontaneous heating and ignition of both agricultural and industrial products.

Schools of Instruction for Firemen

The establishment of schools of instruction is one of the most gratifying undertakings in fire prevention work in recent years. Fire losses have been reduced in many sections of the United States where these firemen's schools have been held.

These schools afford a splendid opportunity to acquaint the firemen with the latest developments in fire and explosion prevention, as well as fire extinguishment. They not only train firemen in the best methods of fire fighting, but also inform them on the most effective methods for prevention of fires.

Research Studies in Dust Explosion Preventions

Research work on dust explosion and fire prevention has as its object the development of methods and appliances for the protection of human life, foodstuffs, and property.

The practical application of the results of this research work already has resulted in a marked reduction in losses from dust explosions and resulting fires in some of the principal grain and milling industries in both the United States and Canada.

Chief Derra Retires

Chief August G. Derra, who has been a member of the Schenectady, N. Y., Fire Department for thirty-eight years, retired on pension, to be effective on December 1.

He is succeeded by Deputy Chief James J. Higgins, who has been appointed Acting Chief.

Chief Higgins enlisted as a volunteer in July, 1907, and became a permanent

Chief August C. Derra

fireman the next year. He resigned on November 15, 1909, although he continued as a volunteer until he was again given a permanent position on October 23, 1915. Higgins was made Lieutenant on December 23, 1922; Captain on January 1, 1924; Assistant Deputy Fire Marshal on April 1, 1930; Deputy Chief on December 24, 1936.

CONVENTION DATES

Sept. 14-15—IOWA FIREMEN'S ASSOCIATION. 60th Annual Convention, Atlantic, Ia. Secretary, Paul A. Soener, Independence, Ia.

Sept. 15—FIRE CHIEFS' CLUB OF MASSACHUSETTS. Regular Meeting. Secretary, Chief William H. Hill, Belmont, Mass.

Sept. 16-18—LOUISIANA STATE FIREMEN'S ASSOCIATION. 32nd Annual Convention, Plaquemine, La. Secretary, Elward Wright, Houma, La.

Sept. 17-18—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 60th Annual Convention, Atlantic City, N. J. Secretary, Evan F. Benners, 602 Chamber of Commerce Bldg., Newark, N. J.

Sept. 27—TEMISKAMING FIREMEN'S ASSOCIATION. 22nd Annual Convention, Amos, Que. Secretary-Treasurer, F. E. Thompson, Box 686, New Liskaard, Ont.

Sept. 27-30—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 15th Annual Convention, Redding, Cal. Secretary-Treasurer, H. E. Strasser, 3404 32nd St., San Diego, Cal.

October — ARKANSAS STATE FIREMEN'S ASSOCIATION. 16th Annual Convention, Little Rock, Ark. (Exact date to be announced later.) Secretary-Treasurer, H. D. Compton, Little Rock, Ark.

Oct. 5-7—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 58th Annual Convention, Philadelphia, Pa. Secretary, Chief Charles E. Clark, Box 217, Wayne, Pa.

Oct. 6-7—ALABAMA STATE FIREMEN'S ASSOCIATION. Second Annual Convention, Montgomery, Ala. (State Fire College to be held just prior to convention.) Secretary-Treasurer, George E. Crosett, Chief Dispatcher, 1916 Sixth Ave., Birmingham, Ala.

Oct. 12-14—ILLINOIS FIREMEN'S ASSOCIATION. 50th (Golden Anniversary) Convention, Danville, Ill. Secretary, Assistant Chief Roy W. Alsip, Champaign, Ill.

Oct. 19-21—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, North Platte, Neb. Secretary-Treasurer, Louis A. Novak, Box 788, Norfolk, Neb.

Oct. 19-22—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 65th Annual Conference. Headquarters, Biltmore Hotel, and Exhibits and Sessions, New Municipal Auditoriums, Oklahoma City, Okla. Secretary-Treasurer, Ex-Chief James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.; Chairman, Exhibits, Chief Ray Tiller, Waterloo, Ia.

Oct. 20—FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Fairfield Fire Headquarters, near Tarrytown Road, White Plains, N. Y. Secretary, Captain Howard Geer, Rye, N. Y.

Oct. 27-28—INDIANA STATE FIRE SCHOOL. 4th Annual School, Purdue University, Lafayette, Ind. Director, Dean W. A. Knapp, Engineering Extension Dept., Purdue University.

Oct. 28—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Long Ridge, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Nov. 24—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting Turn-of-River, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Dec. 22—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Bethel, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Jan. 26, 1938—FAIRFIELD COUNTY FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Stamford, Conn. Secretary, Lieut. John Moehring, Toms Road, Stamford, Conn.

Blanchard, of Laboratories, Dead

Birdsall E. Blanchard, for many years Assistant Secretary of the Underwriters' Laboratories, died on August 26, at the age of sixty-six. He had retired from active duty two years ago, because of ill health.

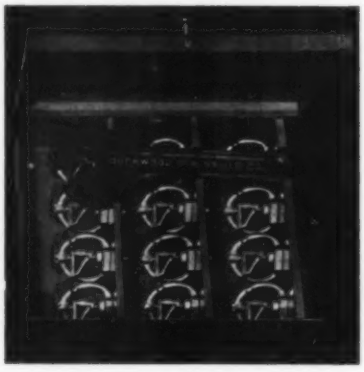
He was an electrical inspector with the Chicago Board of Fire Underwriters and later was on the editorial staff of Popular Electricity, later Popular Science Monthly. He was editor of Laboratories' Data until that magazine was discontinued in 1932. Thereafter he had charge of the printing of the lists of inspected appliances issued by the Laboratories.

His widow and one son survive.

Manufacturers' Announcements

Emergency Sprinkler Head Cabinet

The Rockwood Sprinkler Company, of Worcester, Mass., has placed on the market an emergency sprinkler head cabinet. The cabinet is of steel construction with all welded joints. There



Rockwood Automatic Sprinkler Head Cabinet

are individual mounting spaces for twelve sprinkler heads and a special sprinkler head wrench. The cabinet, complete with the heads and wrench, weighs nine pounds.

Gas Mask

An illustrated folder has been issued by the Mine Safety Appliances Company, Pittsburgh, Pa., to describe the Burrell type all service gas mask. This canister type gas mask has been approved by the U. S. Bureau of Mines.

Carbon Tetrachloride Extinguisher

Buffalo "Super"

Buffalo Fire Appliance Corporation, 44 Central Avenue, Buffalo, N. Y., announces a one quart size C.T.C. type fire extinguisher to be known as the Buffalo "Super."

The extinguisher has a moisture-proof breather designed to prevent corrosion, a heavy seamless drawn brass shell, double acting pump, and an extra heavy brass nozzle, recessed in the case to protect it from damage. The contents will not freeze, the manufacturers claim, even at forty degrees below zero. The extinguisher has been approved by the Underwriters' Laboratories.

Chief Brookins Recovering

Word has been received that Chief Louis Brookins, of Norwich, N. Y., who recently underwent a delicate operation, is making good headway toward recovery. He is at the Norwich Hospital.

50th Anniversary for Illinois Firemen

Plans are being completed for the fiftieth convention of the Illinois Firemen's Association which will be held at Danville, October 12 to 14.

The convention hall and exhibit space will be in one building and on the same floor. Chief Albert Herring, Murphysboro, is Chairman of the Exhibit Committee.

Virginia Firemen Meet

Over thirty fire companies were represented in the parade at Charlottesville, Va., which was part of the fifty-first annual convention of the Virginia State Firemen's Association. Prizes were awarded for best appearances.

Hose and ladder contests were held followed by a band contest.

Mayor Frank H. Wheeler, Clifton, was elected to serve his sixth term as President. The other officers are Charles H. Page, Charlottesville, Vice-President; O. W. Dabney, Staunton, Secretary, and A. R. Thompson, Treasurer.

The 1938 convention will be held at Luray.

Department Reports Received

Singapore, Straits Settlements—Annual report of the Fire Department of Singapore; six pages.

Minneapolis, Minn.—Annual report of the Minneapolis Fire Department; fifty typewritten pages.

Apparatus Arrives at San Diego

The new Seagrave 1,000-gallon triple combination pumpers were delivered to San Diego, Cal., by way of boat. The residents are proud of their harbor, and all shipments from the east, are routed via boat, if possible. The apparatus was lifted from the hold onto the wharf and run off by its own power. The photograph shows one of the units being placed on the wharf.

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"INFLATION AND FIRE CHIEFS"

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By ROGER W. BABSON, *President*
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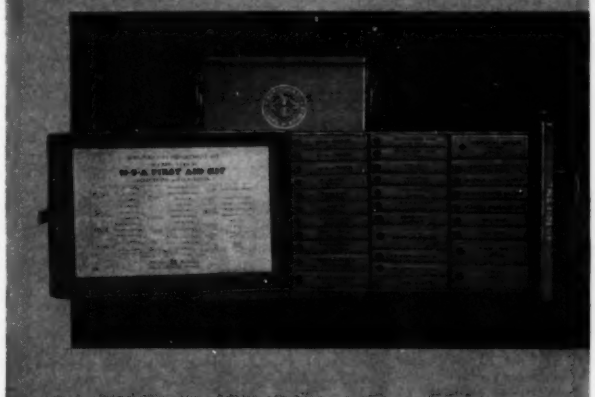

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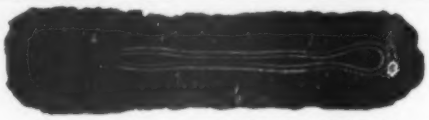
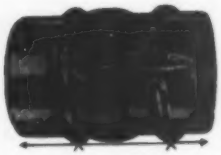


This is the new LIGHT WEIGHT
BI-LATERAL FIRE HOSE



This hose will stand 900 pounds pressure and weighs but 45 pounds to the section uncoupled.

Here's the new DROP-FORGED rocker lug coupling (not cast bronze), with the swivel-protecting feature.

This coupling will stand several expansions and can be used over and over again, saving your city at least 20c to 30c per foot on future hose purchases.

When in the market, let us show you that we can give you the best service obtainable for the least money.

BI-LATERAL FIRE HOSE COMPANY
20 N. Wacker Drive Chicago, Illinois

STERLING GENERAL ALARM SIREN

The Sterling Vertical Siren gives the Volunteer Fire Department a siren combining every important feature a fire signal should have, namely:

1. Powerful and distinctive tone. 2. 100% weather-proof protection.

3. BALL BEARING MOTOR CAPABLE OF CARRYING 100% OVERLOAD.

4. Rigid, durable and unit construction. 5. Perfectly dynamically balanced rotor of aluminum. 6. Fast pickup—long roll. 7. Outside casing rustproof Armco Iron. 4 coats Red Duco.

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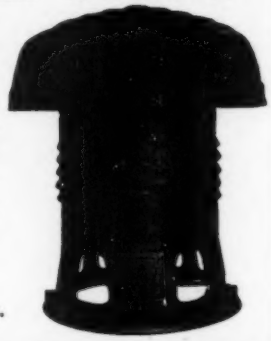

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ROCHESTER, N. Y.

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FIRE HOSE

A complete line, including
Wax Treated - Solid Multiple Woven
AND
Single and Double Jacket Hose
Manufactured by
HEWITT RUBBER CORPORATION
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SOOT BLAST
Puts out chimney fires

Repeat orders prove its value!

5 minutes and a package of SOOT-BLAST, sprinkled over flames at base of chimney, will put out any chimney fire.

Try a case and see!

$4.50 per case 12-26 oz. packages
100-lb. bags $12.50

THE STEBIS CO., Inc., Minneapolis, Minn.

TANNOSPRAY FOR BURNS

THE TANNOSPRAY KIT, for fire department use, is the only self-contained TANNIC ACID unit that is entirely practical for emergency treatment of burns on the scene of the fire.

Non-technical, it can be operated correctly by the laymen with fine results.

TANNIC ACID is recognized as being the only thoroughly scientific treatment for burns of both a major and minor nature.

Your post-card will bring complete literature, specifications, price information and other kindred data.

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COLT FIRE EQUIPMENT

When buying leader line equipment, see us for prices and particulars on Colt Patent Shut-off Nozzles and Quarter Turn Shut-Off Leader Line Siamese Connections.

Cut shows Colt Little Giant Play Pipe with our patented ladder hook feature used with our regular Colt Shut-off Nozzle. Patented April 28, 1936.

We also manufacture Suction Hose Connections, Gate Valves, Chemical Hose Nozzles and Couplings, Siamese Connections and all sizes of Reducers and Nipples.

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COMFORTABLE AS YOUR OLD FELT HAT: WON'T SHAKE OFF

Never go to a fire without the protection of a good helmet. It may save your life.

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ALL PROVED RIGHT BY YEARS OF ACTUAL USE

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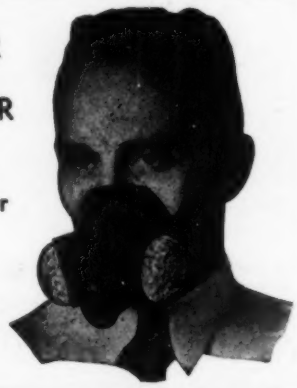


Sullivan Heads Connecticut Firemen

John J. Sullivan, a member of the East Hartford, Conn., volunteer fire company, was unanimously elected President of the Connecticut State Firemen's Association at the fifty-fourth annual convention held at Derby, on August 13 to 14.

John E. Graham, a member of the Bureau of Fire Alarms at Waterbury, was elected State Vice-President. This office was the only one contested for.

John J. Sullivan

David W. Harford, South Norwalk, Secretary for the past seventeen years, was re-elected and Assistant Chief Michael T. Souney of New Britain was re-named Treasurer for his fifteenth successive term.

Rev. Michael J. Thompson, pastor of St. Agnes' R. C. Church, Niantic, and a private in the Waterbury fire department prior to entering the priesthood, was again honored by being chosen as State Chaplain. Thomas F. Magner was reappointed as official press representative.

County Vice-Presidents elected were: New Haven County, Charles H. Brundage, New Haven; Hartford County, Charles H. Fritzer, Hartford; Litchfield County, C. A. Carrigan, Terryville; Windham County, James Walker, Plainfield; Fairfield County, George Brencher, Darien; Middlesex County, John U. Dibble, Saybrook; New London County, Harold J. Lieberman, Norwich; Tolland County, George B. Milne, Rockville.

The Fire Chiefs' Club, composed of past and present Fire Department heads in the state, held their annual get-together and luncheon at the Hotel Clark, convention headquarters, and elected the following officers for the ensuing year:

President, Michael W. Lawton, Middletown; First Vice-President, George B. Milne, Rockville; Second Vice-President, Michael T. Keena, Hartford; Secretary-Treasurer, D. B. Mercer, Woodbridge.

Resolutions were passed on the death of Chief George W. Hoadley, of Naugatuck, a member of the club for many years.

Several resolutions presented to the 400 or more delegates present were discussed during the first day's session. The assemblage voted to increase the two dollars per day benefits paid to injured firemen to three dollars. Before this plan can be effective the state legislature will be asked to grant a larger appropriation to the association.

Mayor George P. Sullivan of Derby welcomed the guests to the city. The principal speaker was Lieut. Governor T. Frank Hayes of Waterbury, an ardent fire "fan." During his address Lieut. Governor Hayes paid a glowing tribute to the work of a fireman and the sacrifices he must make in the protection of life and property.

On Saturday afternoon, August 14, the annual firemen's parade was held through the principal streets of the city. Over 10,000 firemen were in line. The town of Milford was awarded the 1938 convention.

THOMAS F. MAGNER.

New Haven Chiefs Meet

The plan of the Connecticut Board of Education for establishing regional training schools for firemen was endorsed at the August meeting of the New Haven County, Conn., Fire Chiefs Emergency Plan held at Orange.

Although organized only last April, the New Haven Plan now has a membership of sixty-five chiefs embracing twenty-two cities and towns. The officers are Chief John Pachl, Annex Fire Department, New Haven, President; Captain William G. Russell, Waterbury, First Vice-President; Chief James Swan, Seymour, Second Vice-President; Assistant Chief Ernest Cox, Milford, Third Vice-President; Chief Edward Pracny, Wolcott, Secretary; Assistant Chief Arthur Harris, Meriden, Treasurer; and the following directors: Chief Russell Pollard, Derby; Chief Milton Galvin, Naugatuck; Chief M. R. Brockett, North Haven; Chief James Downey, Wallingford; Captain Clark A. Howlett, Orange; and Assistant Chief F. O. Spaine, of New Haven.

Chief George Brencher, of Darien, chairman of the Fairfield County Fire Chiefs' Emergency Plan Legislative Committee, recently presented the New Haven Plan organization with a banner and stand as a gift from the Fairfield Chiefs.

The late spring meeting of the New Haven Plan was held in Naugatuck on June 20 where demonstrations were given of various fog nozzles and the Gilson angular nozzle, under direction of Chief Milton Galvin and Assistant Chief James Quinn, of the Naugatuck Fire Department. The meeting took place in fire headquarters at Naugatuck and the speakers were Warden John J. Sheridan, members of the fire board, Jules Steffin, of the Mine Safety Appliance Company; Chief George Brencher, of Darien; Attorney Joseph P. Zone, Belleville; Granville D. Stubbs, and Ex-Chief Beckerle, Danbury.

Ladies' Outing in N. H.

The annual ladies' day and outing of the New Hampshire Fire Chiefs' Club was held on August 11 at Hampton Beach, with a shore dinner in the Ashworth Hotel. The fire chiefs' clubs of Massachusetts, Vermont, and Maine were invited to join in the outing. The speakers included Colonel Paul G. Kirk, Massachusetts Commissioner of Public Safety, and Stephen C. Garrity, State Fire Marshal of Massachusetts. Chief Albert C. Melendy, of Nashua, N. H., was in general charge of the arrangements.

HARRY BELKNAP.

New Fire Alarm for Panama

The city of Panama has just purchased from The Gamewell Company, through the Compania Panamena Fuerza Y Luz, a new fire alarm central station outfit of sixteen circuits capacity, additional fire alarm boxes of the Three-Fold type, and a Diaphone public alarm outfit. The installation will be made by Gamewell engineers.

The existing fire alarm system was supplied by The Gamewell Company nearly thirty years ago and boxes have been added from time to time until the system has outgrown the capacity of the original central station equipment.

David Leerburger Marks His Seventieth Birthday

David Leerburger was host at a dinner to his associates of Walter Kidde & Co., to mark his seventieth birthday. He has been selling Lux fire extinguishing equipment in the New York territory for the past ten years. He was presented with a gold watch by his fellow employees. Reading from left to right, the men are: John Kidde, A. C. Dehnel, Clifford Strain, Sales Manager; C. L. Griffin, Yacht and Aeronautical Manager; L. B. Zuber, David Leerburger, Walter Kidde, President of the company; Arthur M. Doxsey, Marine Manager; P. W. Eberhardt, Manager of Public Utility Division, and I. R. Lewis, Treasurer.

N. C. May Ban Gas Trucks on City Streets

The North Carolina Fire Chiefs Association will soon make an appeal to the governing bodies of all North Carolina municipalities to ban in the residential and business districts, the large gasoline motor trucks and tanks, it was announced by Chief Hendrix Palmer, Charlotte, N. C., recently re-elected President of the state chiefs association at Greensboro.

The state association will also exert every means at its disposal to get the North Carolina general assembly to exempt Fire Departments from the state seven-cent gasoline tax used by these departments in fire-fighting equipment.

Both proposals will be presented to the annual conventions of the North Carolina Municipal League at Winston-Salem, September 27-28, and the co-operation of the organized municipal officials will be requested.

Chief Palmer said that the heavy gasoline tanks conveying between 3,000 and 5,000 gallons of gasoline are of extreme danger to cities and towns, and the North Carolina Municipal League will be asked to sponsor in all cities and towns, an ordinance that will require the routing of these trucks around the towns and prohibiting them from passing through the residential and business areas. The parking of these trucks, including those that are empty, will also be banned on city streets.

Several fires have occurred in some of these tank trucks on North Carolina highways, Chief Palmer said. He said that one of them ignited and set fire to a service station near Lumberton. One of them, he said, ignited in the town of Davidson, but its driver risked his life and drove the blazing tank out of the town. Many other fires have occurred in or near towns from the trucks.

In regard to the exemption of Fire Departments from the state gasoline tax Chief Palmer said that farmers are not required to pay the tax on gasoline used in farm machinery and the North Carolina Fire Chiefs feel that gasoline utilized in fire-fighting equipment should also be tax free.

D. G. SPENCER.

Chief Skelton Resigns

Because of differences with the Board of Selectmen, Chief Walter Skelton, of the Burlington, Mass., Fire Department, recently submitted his resignation. He had served fifty years as a fireman and during his term as Chief, the apparatus was motorized and improved. He is also a forest warden, and a member of the Executive Board, Middlesex County Forest Fire Wardens' Association.

HARRY BELKNAP.

Katonah Has Rescue Car

A new rescue car has been put in service by the Fire Department at Katonah, N. Y.

The chassis is a 1.5-ton DeLuxe Diamond T. dual wheel, and a special type body was built.

The Rescue Company membership is limited to thirty men who are trained in first aid and life saving work. The department is one of the few American Red Cross first aid stations in Westchester County.

The truck will seat fourteen men on the side seats and there is also a folding seat beside the driver. All the cabinets have lights and there is a large dome light inside the car. It carries the usual first aid appliances and rescue equipment.

The truck is owned by the Fire Department and was paid for from funds raised by the annual ball.

Rescue Car in Service at Katonah, N. Y.

N. Y. Firemen Convene

The nineteenth annual convention of the New York State Permanent Firemen's Association, was held at Amsterdam, on August 15 to 18, with more than four hundred persons registered.

George J. Richardson, Secretary-Treasurer, International Fire Fighters Association, discussed means for bettering conditions among the firemen.

A state-wide two-platoon system was among the proposals discussed at the convention, as well as plans for a uniform pension system.

James J. Glenn, Schenectady, was re-elected President. The other officers are J. Arthur Bleau, Amsterdam, First Vice President; Leslie G. Aylesworth, Syracuse, Second Vice-President; Edward Gillen, Kingston, Third Vice-President; Frank A. Emden, Utica, Secretary-Treasurer.

The place for the 1938 convention is to be selected by the Executive Committee at the fall meeting to be held at Rome.

Drills During Hot Weather

Some attention has been focused on the question of continuing drills during the hot summer weather.

At Omaha, Neb., Chief A. W. Olsen advises, that company drills are conducted at the drill tower from May until October, from 9 a.m. to 4 p.m. each day. During July and August, the hot months at Omaha, outside evolutions are started at 8:30 a.m., continuing until 11 a.m., and then from 1 p.m. to 3 p.m. The school room is cool, and the men have discussions, go through knot tying, sprinkler system and other work. Chief Olsen believes that the drill work should be continued during the hot weather, but that caution should be exercised by those in charge.

Chief Frank Cochrane, Phoenix, Ariz., states that due to hot weather and vacations, the drill tower is closed from June 15 to September 15.

At Cincinnati, Ohio, according to information supplied by Chief Barney J. Houston, training continues throughout the year in one form or another. He says:

"We have tried to keep it uniform throughout the year. The Drill Master issues bulletins for different periods as to the special type of work to be practiced. Fires occur at any time, and therefore the men must be prepared. It is the custom to demand a certain number of hours training each week, whether it is hot or cold.

"The officer of the company divides up the hours and he keeps a record in his diary. Allowances are made for men who may be indisposed, but this is only done on the advice of the department surgeon."

Two Pirsch Pumpers Delivered to Memphis, Tenn.

Two Pirsch, 1,000-gallon pumpers were delivered to Memphis, Tenn. The company also reports the delivery of an 85-foot hydro-mechanical aerial ladder to Pittsburgh, Pa. Both types of machines have 200 h.p. engines, and the regulation fire equipment.

AFTER all, a good badge is a sensible investment. Not everyone can wear a fireman's emblem of service. You men who have devoted your lives to saving life and property should be proud of your badge.

You will be if you wear a BRAXMAR BADGE. Over fifty-five years of experience goes into every badge you buy.

Catalog on request.

C. G. BRAXMAR CO., 242 West 55th Street, New York

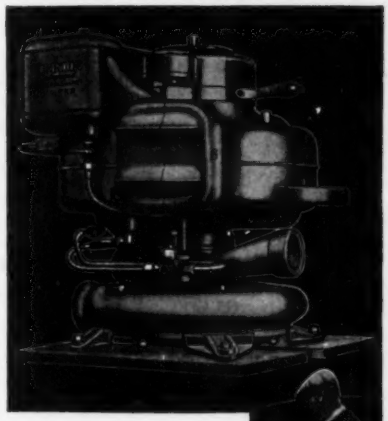
BRAXMAR BADGES

Standard for Over Fifty Years

UP TO **154** Gals. per Min.

UP TO **150** Lbs. Pressure

High Capacity with High Pressure



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For forest fires, brush fires, drainage, booster, etc. Saves costlier equipment. Write today for complete performance tables and specifications on this newest type, smooth running, four cylinder Evinrude Fire Fighter.

Develops 9.2 H.P. at 4000 R.P.M. Latest, modern, hooded power type motor. Sand and other foreign substances handled without wear by simple, non-friction, centrifugal pump of exclusive Evinrude design. Write EVINRUDE, 4587 N. 27th St., Milwaukee, Wis.

EVINRUDE HIGH PRESSURE **PUMPER**

HIGH PRESSURE IS NO CAUSE FOR WORRY FROM BURSTING HOSE, WHEN ACTION IS AT FEVER HEAT, IF YOU ARE USING

QUAKER CITY FIRE HOSE

Flat Cured — Wax and Gum Treated Fire Hose. Chemical Hose, Fire Engine Suction Hose. Send for samples and prices.

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Serving the public for over 50 years.

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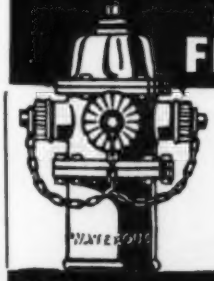
WATEROUS COMPRESSION FIRE HYDRANTS



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FIRE CONTROL PRODUCTS

MOTOR FIRE APPARATUS
WATEROUS PUMPS
GARRISON ALARM SYSTEMS

Automatic — Supervisory — Manual

544 IRANISTAN AVENUE
BRIDGEPORT, CONNECTICUT

FALSE ALARMS

SHOCKPROOF

The fire station is often the port of call for almost all the town's residents who have some time on their hands and don't know what to do with it.

After a particularly annoying caller had left, the desk man remarked to the fellow who was polishing the brass work:

"There goes a second story man."

"You don't say," said the fireman thinking of cat-like burglars.

"Yes, his first story never fools me."

Many a girl who can't add certainly can distract.

WRONG LOT

The Lieutenant was not accustomed to court procedure. He was directed by his superior officer to appear in court against a motorist who had refused to give right of way to apparatus speeding to a fire. Everything seemed strange to him.

He looked at a group of men in the front corner of the court. He remarked to the clerk:

"Gee whiz! They've caught a pretty tough lot this morning, haven't they?"

"You're looking at the wrong lot," answered the clerk. "Those are the lawyers."

If your foot slips, you may recover your balance, but if your tongue slips, you cannot recall your words.

SAFETY FIRST

Living near a fire station is not the best thing possible. There was one woman who had her hands full. It seemed that every time the apparatus rolled by, they did so with the cut out open; and the exhaust, together with the dust created by the rush of the apparatus, did not prove the best treatment for laundry that she had on her line.

One day she made an attempt to solve the problem. She posted a large sign about fifty yards from each side of the house:

"D r i v e carefully. B i g Washout Ahead."

At nearly all camps you will find the friendly mosquito who just dropped in for a bite.

PROPERLY PLACED

At the suggestion of the State Superintendent of Hospitals, a Captain of the department was making a fire survey of the state hospital for the insane that was located near his city.

During the visit he thought he should call up headquarters to learn if any large alarms had come in. He picked up the telephone he saw in one of the rooms. He had difficulty in getting a response from the private switchboard operator.

The Captain lost his patience. When the operator finally did answer, the officer shouted:

"Look here, young lady, do you know who I am?"

In a very calm manner, she replied, "No, but I know where you are."

Of all the things you wear, your expression is the most important.

BACK TO NATURE

The family felt that they were indebted to the Captain for the way he extinguished a chimney fire in their home without damaging expensive rugs and furnishings. So one evening, on his night off, the Captain was invited to dinner.

As the family sat down with their guest at the table, Mrs. Wilson noticed that there were no knives and forks at the guest's plate. Surprised, she called the maid.

"Susie, why didn't you set out the knives and forks at the Captain's plate?"

"Please, ma'am, I didn't think he needed any. Mr. Wilson says, 'The Captain eats like a horse.'"

A DISAGREEMENT

It was very difficult to find "twelve good men and true," who would listen to the evidence in a rather noted local arson case. While there were plenty of men available, it was difficult to find men suitable to the lawyers for the defendant and the state. Finally when the last one was chosen, the results showed that there were two on the jury who did not understand English very well.

The case dragged on and on. When the time came to recess for dinner, the foreman requested as a matter of form, to ballot on the question. The results were in favor of a recess for dinner, 10, and not guilty, 2.

CAUSE FOR ACTION

It was not much of a fire, but a smoky one. Some people were overcome, but were revived without much difficulty.

A fireman had applied first aid treatment to a girl. A spectator pointed out to the fireman the girl's father talking to another man.

With the idea of appearing a hero, he picked up the girl, walked over to her father, and said:

"Sir, I have just resuscitated your daughter."

The father became almost purple with anger.

"By gad, then you'll marry her."

TWO IN A ROOM

At one of the hotels, a girl who was staying as a guest, phoned excitedly down to the room clerk that there was a rat in her room.

But the clerk was used to such emergencies.

He replied, "Make him come down and register."

WRONG EVIDENCE

People wondered why the two ever married. He was fond of going out with the boys, while she was a firm believer in a regular, orderly life.

When the boys at the house elected a new Chief, he went out with the boys to celebrate. Of course, it was very late when he went home. His wife heard him come in.

"What do you mean coming home at this time of morning?" she asked.

"My dear, it's just twelve o'clock."

With a show of anger she answered, "It's past three o'clock."

"Have your own way, dear, if you will, and believe a ninety-eight cent clock instead of me."

Time to start counting the days to Xmas.

"Hm! He's our 'Acting Chief'."

—*Drawing by "Art" Espey*

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It's FREE

As a reader of FIRE ENGINEERING you are entitled to our buyers' information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material that you are planning to buy, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank below to tell us what you need and we will see that you get the information you want.

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9-37

Signaling efficiency

begins at the box

OBSOLETE, uncertain fire-alarm boxes hinder signal efficiency . . . may endanger lives. Horni positive non-interfering boxes are up-to-date, efficient, dependable. Made to meet the needs of modern fire-alarm signaling, these boxes include important new improvements. Mail this coupon below for a comprehensive, interesting booklet, giving complete information on all types of Fire-Alarm Equipment.

Exclusive HORNI Feature

- Lift-up single action door and pull.
- Protected movement under sealed glass cover.
- Sealed against elements, dusts, insects.
- Easily accessible terminal block.
- New design—simplified movements.
- Quickly available interchangeable parts.
- Spring capacity for 10 four round alarms or more.

Room 1553, Graybar Bldg.,
420 Lexington Ave., N.Y. C.
Gentlemen:
Please send us full information on modern Fire-Alarm Boxes and other equipment.

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OFFICES IN 83 PRINCIPAL CITIES

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You wouldn't Fight a "B'ar" with a Pop-Gun

. . . and so with fire fighting.

Don't attempt to fight fire with anything but the most effective weapons —weapons that you are sure will do the job efficiently. The most commonly used weapon against fire is, of course, water. But to get water on the fire most effectively requires a Fire Hose that will convey it to the spot where it will do the most good. To do this efficiently a Fire Hose should possess these seven outstanding features—

1 Finer grade cable-twisted yarn providing greater burst-resistance without increased weight or bulk.

2 Twill-weave construction giving more resistance to wear and abrasion . . . more flexibility . . . lighter weight . . . no twisting and kinking under pressure.

3 Moisture-proof . . . mildew- and rot-proof . . . no freezing or resultant cracking.

4 A naturally smooth interior free from corrugations—hence greater pressure where you need it . . . at the nozzle.

5 Longer life because of Slow Aging, Scientifically Compounded Rubber Lining.

6 Smooth exterior that glides over and around sharp corners . . . longer useful life of jackets.

7 Easily packed . . . occupies less space.

All of these seven features are available . . . but only in ONE Fire Hose—
FABRIC WAX AND PARA GUM TREATED FIRE HOSE.

Send for materials for conducting a simple test that will prove to you the superiority of Fabric Wax and Para Gum Treated Fire Hose. Fabric Fire Hose is available only through direct representatives of

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For greater protection to lives and property

SPECIFY EUREKA *Streamlined* FIRE HOSE

Multiple Woven construction of Eureka "Streamlined" Fire Hose makes the hose stronger, safer to handle, more dependable in action. The fabric is made circular and each cord is woven into the fabric under uniform suspended weight tension. All plies are bound together into one solid homogeneous fabric by one operation of the loom instead of being separate, as in loose-jacketed hose.

Be Sure of your fire hose

Be Sure that it will stand up under all conditions of service—that it will protect the lives of your firemen and the lives and homes of the people in your community, and lastly, be sure that it's Eureka.

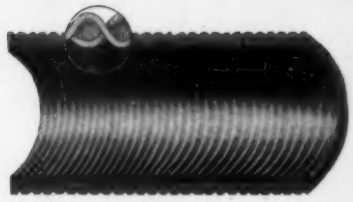
Eureka, with the most complete line of quality fire hose ever made and over 60 years of manufacturing experience, is the largest producer of fire hose in the country. You will be sure, and safe with Eureka.

Call in a Eureka Representative and let him know your hose needs.

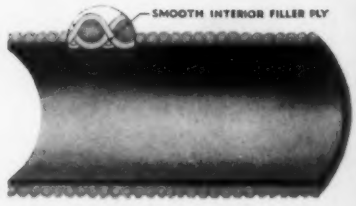
EUREKA FIRE HOSE

Division of United States Rubber Products, Inc

1790 BROADWAY NEW YORK, N. Y.



• In the ordinary type of fire hose there is no Smooth-Interior Filler-Ply to fill the valleys in the weave of the inner jacket. As a result, when the hose is subjected to hydraulic pressure, the rubber lining is forced back into these valleys, giving the interior of the hose a corrugated or "washboarded" waterway. The "wash board" condition causes excessive friction loss.



• The Smooth-Interior Filler-Ply is an exclusive Eureka development. An individual set of warp and weft cords completely fills the valleys of the inner jacket, making the surface of that jacket perfectly smooth and level. There are no valleys into which the rubber lining can recede when hydraulic pressure is applied. In Eureka "Streamline" Fire Hose you are always sure of a smooth waterway and a minimum of friction loss.

• Eureka *new* and *better* rubber lining with improved lap-seam... 4 plies of specially developed long-lived rubber... calendered into one homogeneous body proved far superior by the Bomb Test—a scientific method of predetermining the aging characteristics of rubber goods.

• All Fabrics used in the different brands of Eureka Fire Hose are antiseptically treated to prevent the formation of mildew and rot. The exclusive mildew repellent solution used does not add to the weight of the hose nor make the hose hard to handle.